

## **Annex SFB**

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

Responsible: Faculty of Mathematics and Computer Science

Responsible: Institute of Mathematics

Examination regulations version: 2019

Examination regulations version: 2019

Abbreviations used: Course types:  $\mathbf{E} = \text{field trip}$ ,  $\mathbf{K} = \text{colloquium}$ ,  $\mathbf{O} = \text{conversatorium}$ ,  $\mathbf{P} = \text{placement/lab course}$ ,  $\mathbf{R} = \text{project}$ ,  $\mathbf{S} = \text{seminar}$ ,  $\mathbf{T} = \text{tutorial}$ ,  $\mathbf{U} = \text{exercise}$ ,  $\mathbf{V} = \mathbf{V} = \mathbf$ 

= lecture

Term: **SS** = summer semester. **WS** = winter semester

Methods of grading: **NUM** = numerical grade, **B/NB** = (not) successfully completed

Regulations: (L)ASPO = general academic and examination regulations (for teaching-degree programmes), FSB = subject-specific provisions, SFB

= list of modules

Other: A = thesis, LV = course(s), PL = assessment(s), TN = participants, VL = prerequisite(s)

Conventions for the

Unless otherwise stated, courses and assessments will be held in German, assessments will be offered every semester and modules are not cre-

modules in this SFB: ditable for bonus.

Information on Should there be the option to choose between several methods of assessment, the lecturer will agree with the module coordinator on the meassessment procedures: 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:

## ASP02015

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

## 27-Mar-2019 (2019-23)

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

Every module will be described using the following form:

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

Compulsory Elective	es (90 ECTS cre	edits)										
Subfield Numerica	l Mathematics a	and Optim	izatior	(30-60 ECTS credit	s)							
10-M=AAAN-161-	Applied Analy	sis										
mo1	ECTS 10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate				
	Courses		V (4) - Modu	(4) + Ü (2) Iodule taught in: German and/or English								
	Method of ass	sessment	minut Asses Langu	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) Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German or English creditable for bonus								
10-M=VOP-	Selected Topic	cs in Optii	mizatio	zation								
T-161-m01	ECTS 10	Duratio		1 semester	Method of grading	numerical grade	Modul level	graduate				
	Courses			+ Ü (2) le taught in: Germar	n and/or English							
	Method of ass		minut Asses Langu credit	minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German or English creditable for bonus								
10-M=VMPH-161-	Selected Topic	-		· · · · · · · · · · · · · · · · · · ·	1							
mo1	ECTS 10	Duratio		1 semester	Method of grading	numerical grade	Modul level	graduate				
	Courses			V (4) + Ü (2) Module taught in: German and/or English								
	Method of ass	sessment	a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one cand minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German or English creditable for bonus									
10-M=AOP-	Basics in Opti	mization										
T-161-m01	ECTS 10	Duration		1 semester	Method of grading	numerical grade	Modul level	graduate				
	Courses			V (4) + Ü (2) Module taught in: German and/or English								
	Method 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) Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German or English creditable for bonus									

10-M=V-	Mathematica	Mathematical Continuum Mechanics													
KOM-161-mo1	ECTS 5	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate							
	Courses			+ Ü (1) ıle taught in: Germar	n and/or English										
	Method of as	ssessment	Minut Asses Langu	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) Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German or English creditable for bonus											
10-M=ANG-	Numeric of L	arge Syste	ms of E	quations			,								
G-161-m01	ECTS 10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate							
	Courses			4) + Ü (2) odule taught in: German and/or English											
	Method of as	ssessment	minut Asses Langu	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) Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German or English Creditable for bonus											
10-M=VN-	Numeric of Partial Differential Equations														
PE-161-mo1	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											
	Method of as	ssessment	minut Asses Langu	tes) or c) oral examir	nation in groups (grou e semester in which	utes, usually chosen) or ups of 2, 15 minutes per the course is offered and	candidate)	one candidate each (approx. 20							
10-M=VOST-161-	Optimal Con	trol													
mo1	ECTS 5	Duratio		1 semester	Method of grading	numerical grade	Modul level	graduate							
	Courses			+ Ü (1) ıle taught in: Germar	n and/or English										
	Method of as	ssessment	minut Asses Langu	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) Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German or English creditable for bonus											

10-M=VI-	Inverse	Proble	ms			,		'						
PR-161-mo1	ECTS	5	Duratio	1	1 semester	Method of grading	numerical grade	Modul level	graduate					
	Course	S			+ Ü (1) ıle taught in: Germa	an and/or English								
	Method	l of ass	essment	minut Asses Langu	tes) or c) oral exam ssment offered: In t	ination in groups (gro	oups of 2, approx. 10 m		one candidate each (approx. 15 emester					
10-M=V-	Selecte	d Topic	s in Num	erical a	and Applied Mathe	matics								
NAM-192-m01	ECTS	10	Duratio	1	1 semester	Method of grading	numerical grade	Modul level	graduate					
	Course	S			V (4) + Ü (2) Module taught in: German and/or English									
	Method	l of ass	essment	minut Langu Asses	a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (apprintes) or c) oral examination in groups (groups of 2, 15 minutes per candidate)  Language of assessment: German and/or English  Assessment offered: Only when announced in the semester in which the courses are offered and in the subsequent so creditable for bonus									
Subfield Mathema	atics (10-2	o ECTS	credits)											
10-M=AAL-	Topics	Topics in Algebra												
G-161-m01	ECTS	10	Duratio	า	1 semester	Method of grading	numerical grade	Modul level	graduate					
	Course	S			V (4) + Ü (2) Module taught in: German and/or English									
	Method	d of ass	essment	a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate earminutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate)  Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German or English creditable for bonus										
10-M=ADG-	Differe	ntial Ge	ometry		,	,		,						
M-161-mo1	ECTS	10	Duratio	1	1 semester	Method of grading	numerical grade	Modul level	graduate					
	Courses				+ Ü (2) ıle taught in: Germa	an and/or English			-					
	Method of assessment			a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German or English creditable for bonus										

10-M=AFT-	Comple	ex Analy	/sis			,		'-				
H-161-m01	ECTS	10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	S			+ Ü (2) ıle taught in: Germ	an and/or English						
	Method	d of ass	essment	minu Asses Langi	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) Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German or English creditable for bonus							
10-M=AGMS-161-	Geome	tric Stru	ıctures	,				,				
mo1	ECTS	10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	S			4) + Ü (2) dule taught in: German and/or English							
	Method	d of ass	essment	minu Asses Langi	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) Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German or English creditable for bonus							
10-M=AIST-161-	Industr	Industrial Statistics 1										
mo1	ECTS	10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	Courses			V (4) + Ü (2) Module taught in: German and/or English							
	Method	d of ass	a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 90 to 120 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate)  Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German or English creditable for bonus									
10-M=ALTH-161-	Lie The	ory										
mo1	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								
	Method of assessment			a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate)  Assessment offered: In the semester in which the course is offered and in the subsequent semester  Language of assessment: German or English creditable for bonus								

10-M=ARTH-161-	Control	Control Theory												
mo1	ECTS	10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate					
	Courses	5			+ Ü (2) ıle taught in: Germa	n and/or English		,						
	Method	l of asse	essment	minu Asses Langi	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) Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German or English creditable for bonus									
10-M=ASM-	Stocha	stic Mo	dels of Ri	sk Ma	nagement									
R-161-mo1	ECTS	10	Duratio	า	1 semester	Method of grading	numerical grade	Modul level	graduate					
	Courses	S			+ Ü (2) ıle taught in: Germa	n and/or English								
	Method	l of asse	essment	minu Asses Langi	a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 3 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German or English creditable for bonus									
10-M=AST-	Stochastical Processes													
P-161-mo1	ECTS	CTS 10 Duratio				8 8		Modul level	graduate					
	Courses			V (4) + Ü (2) Module taught in: German and/or English										
	Method	Method of assessment  a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 90 to 120 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate)  Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German or English creditable for bonus												
10-M=A-	Topolog	gy												
TOP-161-mo1	ECTS	10	Duratio	า	1 semester	Method of grading	numerical grade	Modul level	graduate					
	Courses	S		V (4) + Ü (2) Module taught in: German and/or English										
	Method of assessment			a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate)  Assessment offered: In the semester in which the course is offered and in the subsequent semester  Language of assessment: German or English creditable for bonus										

10-M=AVS-	Insu	rance Mat	hematics	1										
M-161-m01	ECTS	10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate					
	Cour	ses			- + Ü (2) le taught in: Germar	n and/or English								
	Meth	od of ass	essment	minut Asses Langu	a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 3 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German or English creditable for bonus									
10-M=AZ-	Time	Series Ar	alysis 1					,						
RA-161-m01	ECTS	10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate					
	Cour	ses			/ (4) + Ü (2) Module taught in: German and/or English									
	Meth	od of ass	essment	minut Asses Langu	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) Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German or English Creditable for bonus									
10-M=AZTH-161-	Num	Number Theory												
mo1	ECTS	10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate					
	Cour	ses			V (4) + Ü (2) Module taught in: German and/or English									
	Meth	od of ass	essment	a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German or English creditable for bonus										
10-M=AGP-	Giov	anni Prodi	Lecture	(Maste	r)									
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									
	Meth	nod of ass	essment	minut Asses Langu	es) or c) oral examir	nation in groups (grou e semester in which	tes, usually chosen) or bups of 2, approx. 10 min the course is offered and	utes per candidate)	one candidate each (approx. 15					

10-M=VA-	Selecte	d Topic	s in Anal	ysis		'						
NA-161-mo1	ECTS	10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Courses	5			+ Ü (2) ıle taught in: Germa	n and/or English		,				
	Method	of ass	essment	minu Asses Langu	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) Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German or English creditable for bonus							
10-M=VFN-	Selecte	d Topic	s in Finar	icial M	lathematics							
M-161-mo1	ECTS	10	Duratio	า	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Courses	6			(4) + Ü (2) Nodule taught in: German and/or English							
	Method	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)  Assessment offered: In the semester in which the course is offered and in the subsequent semester  Language of assessment: German or English creditable for bonus								
10-M=VGDS-161-	Groups	and th	eir Repres	sentati	ions							
mo1	ECTS	10	Duratio	1	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Courses	6			+ Ü (2) ıle taught in: Germa	n and/or English						
	Method	a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate)  Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German or English creditable for bonus										
10-M=VIST-161-	Industri	ial Stat	istics 2									
mo1	ECTS	10	Duratio		1 semester	Method of grading	numerical grade	Modul level	graduate			
	Courses	5			+ Ü (2) ıle taught in: Germa	n and/or English						
	Method	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)  Assessment offered: In the semester in which the course is offered and in the subsequent semester  Language of assessment: German or English  creditable for bonus								

10-M=V-	Stati	stical An	alysis					<u>,                                      </u>					
STA-161-m01	ECTS	10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate				
	Cour	ses			+ Ü (2) le taught in: Germar	n and/or English							
	Meth	od of ass	sessment	minut Asses Langu	a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approminutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German or English creditable for bonus								
10-M=VVS-	Insu	rance Ma	thematics	2				,					
M-161-m01	ECTS	10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate				
	Cour	ses	,		(4) + Ü (2) lodule taught in: German and/or English								
			sessment	minut Asses Langu	a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 ninutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Assessment offered: In the semester in which the course is offered and in the subsequent semester anguage of assessment: German or English creditable for bonus								
10-M=VZ-		Time Series Analysis 2											
RA-161-m01	ECTS		Duratio		1 semester	Method of grading	numerical grade	Modul level	graduate				
	Cour	ses			V (4) + Ü (2) Module taught in: German and/or English								
	Meth	nod of ass	sessment	a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German or English creditable for bonus									
10-M=VD-	Dyna	mical Sy	stems					,					
SY-161-mo1	ECTS	5	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate				
	Cour	Courses			+ Ü (1) le taught in: Germar	n and/or English							
	Meth	nod of ass	sessment	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) Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German or English creditable for bonus									

10-M=VMB-	Math	ematical	Imaging						-					
V-161-m01	ECTS	5	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate					
	Cour	ses	·		+ Ü (1) le taught in: Germar	n and/or English								
	Meth	od of ass	essment	minut Asses Langu	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) Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German or English creditable for bonus									
10-M=V-	Selec	cted Topi	cs in Cont	rol The	ory			,						
TRT-161-m01	ECTS	10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate					
	Cour	ses			/ (4) + Ü (2) Module taught in: German and/or English									
	Meth	od of ass	essment	minut Asses Langu	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) Assessment offered: In the semester in which the course is offered and in the subsequent semester canguage of assessment: German or English creditable for bonus									
10-M=V-	Non-	Non-linear Analysis												
NAN-161-m01	ECTS	5	Duratio		1 semester	Method of grading	numerical grade	Modul level	graduate					
	Cour	ses			V (3) + Ü (1) Module taught in: German and/or English									
	Meth	od of ass	essment	a) written examination (approx. 60 to 90 minutes, usually chosen) or b) oral examination of one candidate each (a minutes) or c) oral examination in groups (groups of 2, approx. 10 minutes per candidate) Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German or English creditable for bonus										
10-M=VV-	Netw	orked Sy	stems	•										
SY-161-m01	ECTS	5	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate					
	Cour	Courses			V (3) + Ü (1) Module taught in: German and/or English									
	Meth	od of ass	essment	a) written examination (approx. 60 to 90 minutes, usually chosen) or b) oral examination of one candidate each (approx. 15 minutes) or c) oral examination in groups (groups of 2, approx. 10 minutes per candidate) Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German or English creditable for bonus										

10-M=VK-	Comple	x Geon	etry			'		,				
GE-161-mo1	ECTS	10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Courses	5			+ Ü (2) ıle taught in: Germa	n and/or English						
	Method	l of asso	essment	minu Asses Langs	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) Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German or English creditable for bonus							
10-M=VPD-	Partial	Differer	itial Equa	tions	of Mathematical Ph	ysics						
P-161-mo1	ECTS	10	Duratio	า	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Courses	5	•	V (4) + Ü (2) Module taught in: German and/or English								
	Method	a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 2 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate)  Assessment offered: In the semester in which the course is offered and in the subsequent semester  Language of assessment: German or English creditable for bonus										
10-M=V-	Pseudo	Riema	nnian and	l Riem	annian Geometry							
PRG-161-m01	ECTS	10	Duratio		1 semester	Method of grading	numerical grade	Modul level	graduate			
	Courses	5		V (4) + Ü (2) Module taught in: German and/or English								
	Method	Method of assessment  a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approminutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate)  Assessment offered: In the semester in which the course is offered and in the subsequent semester  Language of assessment: German or English  creditable for bonus										
10-M=AF-	Functio	nal Ana	lysis									
AN-161-m01	ECTS	10	Duratio	า	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Courses			V (4) + Ü (2) Module taught in: German and/or English								
	Method of assessment			a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate)  Assessment offered: In the semester in which the course is offered and in the subsequent semester  Language of assessment: German or English creditable for bonus								

10-M=VAD-	Applied	d Differe	ential Geo	metry	,	'		'-				
G-161-mo1	ECTS	10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	S			+ Ü (2) ıle taught in: Germa	nn and/or English						
	Method	d of ass	essment	minu Asses Langu	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) Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German or English creditable for bonus							
10-M=VG-	Giovan	ni Prod	i Lecture :	Selecto	ed Topics (Master)			,				
PSin-152-mo1	ECTS	10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	S			) + Ü (2) Iule taught in: English							
				minut Asses Langu credit	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) Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: English creditable for bonus							
10-M=VG-	Giovanni Prodi Lecture Advanced Topics (Master)											
PAin-152-mo1	ECTS	10	Duratio			Method of grading	numerical grade	Modul level	graduate			
	Courses			V (4) + Ü (2) Module taught in: English								
	Method	Method of assessment  a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate examinates) or c) oral examination in groups (groups of 2, 15 minutes per candidate)  Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: English creditable for bonus										
10-	Giovan	ni Prod	i Lecture l	Moder	n Topics (Master)							
M=VGPMin-152-	ECTS	10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate			
m01	Courses  Method of assessment			V (4) + Ü (2) Module taught in: English								
				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) Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: English creditable for bonus								

10-M=EL-	Learnin	g by Te	aching 1		'		,				
T1-192-m01	ECTS	5	Duratio	n	1 semester	Method of grading (not) successfully completed	Modul level	graduate			
	Course	S		Ü (2)	*	•					
	Method	of ass	essment		Assessment of tutoring activities by supervising lecturers or exercise supervisors (1 to 2 teaching units)						
				Language of assessment: German							
				Application and selection with the teaching coordinator for mathematics							
10-M=VGFT-192-			nplex Ana								
mo1	ECTS	10	Duratio		1 semester	Method of grading   numerical grade	Modul level	graduate			
	Course	S			+ Ü (2) ıle taught in: Germa	n and/or English					
	Method	d of ass	essment	minu Langu Asses	.) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 ninutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) anguage of assessment: German and/or English assessment offered: Only when announced in the semester in which the courses are offered and in the subsequent semester reditable for bonus						
10-M=V-	Cryptography/Coding Theory										
KRY-192-m01	ECTS 10 Duratio			1	1 semester	Method of grading   numerical grade	Modul level	graduate			
	Courses				+ Ü (2) ıle taught in: Germa	n and/or English					
	Method of assessment			a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approminutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate)  Language of assessment: German and/or English  Assessment offered: Only when announced in the semester in which the courses are offered and in the subsequent sem creditable for bonus							
10-M=V-	Compu	ter Alge	ebra								
CAL-192-m01	ECTS	10	Duratio	1	1 semester	Method of grading numerical grade	Modul level	graduate			
	Courses			V (4) + Ü (2) Module taught in: German and/or English							
	Method of assessment			a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate)  Language of assessment: German and/or English Assessment offered: Only when announced in the semester in which the courses are offered and in the subsequent semester creditable for bonus							

10-M=VAZ-	Algorith	Algorithmic Number Theory												
T-192-m01	ECTS	10	Duration	1	1 semester	Method of grading	numerical grade	Modul level	graduate					
	Courses	S			+ Ü (2) ıle taught in: Gern	nan and/or English		·						
	Method	l of ass	sessment	minu Langi Asses	a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German and/or English Assessment offered: Only when announced in the semester in which the courses are offered and in the subsequent semester creditable for bonus									
10-M=VA-	Algebra	Algebraic Geometry												
GE-192-m01	ECTS	10	Duration	1	1 semester	Method of grading	numerical grade	Modul level	graduate					
	Courses	S	<u>.</u>		+ Ü (2) ıle taught in: Gern	nan and/or English	•	·	•					
				a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approminutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate)  Language of assessment: German and/or English  Assessment offered: Only when announced in the semester in which the courses are offered and in the subsequent ser creditable for bonus										
10-M=E-	Internship Mathematics													
PRK-161-m01	ECTS	10	Duration	1	1 semester	Method of grading	numerical grade	Modul level	graduate					
	Courses	 S		P (o)	-			·						
	Method	Method of assessment			a) report on practical course (15 to 30 pages) or b) talk (30 to 60 minutes)									
	other pi	other prerequisites			In advance, please consult with a lecturer who agrees to be your supervisor.									
Subfield Researc	h in Group	s and S	Seminars (	(10-40 ECTS credits)										
10-M=GM-	Researc	ch in G	roups - Ma	them	atics in the Scienc	ces								
SC-161-m01	ECTS	10	Duration	1	1 semester	Method of grading	numerical grade	Modul level	graduate					
	Courses	S			+ S (2) ıle taught in: Gern	nan and/or English		,						
				Asse:	uage of assessme	the semester in which nt: German or English	the course is offered a	and in the subsequent s	emester					
10-M=GN-	Researc	ch in G	roups - Nu	meric	al Mathematics a	nd Applied Analysis								
MA-161-m01	ECTS	10	Duration	ì	1 semester	Method of grading	numerical grade	Modul level	graduate					
	Courses	S		V (2) + S (2) Module taught in: German and/or English										
	Method of assessment			talk (60 to 120 minutes) Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German or English										

10-M=GROC-161-	Resea	rch in Gı	oups - Ro	botics	tics, Optimization and Control Theory								
mo1	ECTS	10	Duration		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	Asses	talk (60 to 120 minutes) Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German or English								
10-M=SGP-	Giova	nni Prod	Seminar	(Mast	er)								
Cin-152-m01	ECTS	5	Duration	<u> </u>	1 semester	Method of grading	numerical grade	Modul level	graduate				
	Course	es		S (2) Modu	le taught in: English			·					
	Metho	d of ass	essment	Asses	alk (60 to 120 minutes) ssessment offered: In the semester in which the course is offered and in the subsequent semester anguage of assessment: English								
10-M=SID-	Interd	isciplina	ry Semin	ar									
C-161-m01	ECTS	5	Duration	1	1 semester	Method of grading	numerical grade	Modul level	graduate				
	Course	es		S (2) Modu	le taught in: Germar	n and/or English							
	Metho	d of ass	essment	Asses	talk (60 to 120 minutes) Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German or English								
10-M=SM-	Seminar Mathematics in the Sciences												
SC-161-m01	ECTS	5	Duration	1	1 semester	Method of grading	numerical grade	Modul level	graduate				
	Course	es		S (2) Module taught in: German and/or English									
	Metho	d of ass	essment	talk (60 to 120 minutes) Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German or English									
10-M=SN-	Semin	ar in Nu	merical M	athem	atics and Applied A	nalysis							
MA-161-m01	ECTS								graduate				
	Course	es		S (2) Modu	S (2) Module taught in: German and/or English								
	Metho	d of ass	essment										

10-M=SOP-	Semina	ar in Op	timizatio	n	,							
T-161-m01	ECTS	5	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate				
	Course	S		S (2) Modu	le taught in: Germ	an and/or English	,					
	Method	d of ass	essment	Asses	talk (60 to 120 minutes) Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German or English							
10-M=SA-	Semina	ar Appli	ed Mathe	matics	natics							
MA-192-m01	ECTS	5	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate				
	Courses				S (2) Module taught in: German and/or English							
	Method	d of ass	essment	talk (approx. 60 to 120 minutes) Language of assessment: German or English Assessment offered: Only when announced in the semester in which the courses are offered and in the subsequent semester								
Subfield Application	n Subje	ct (10-4	o ECTS cr	edits)								
Application Subjec	t Biolog	y and N	ledicine									
07-MS2BI-152-m01	Bioinfo	rmatics	5									
	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate				
	Course	S		V (2) Modu		an and/or English						
	Method	d of ass	essment	a) written examination (30 to 60 minutes, including multiple choice questions) or c) oral examination of one candidate each (30 to 60 minutes) or d) oral examination in groups of up to 3 candidates (30 to 60 minutes) Language of assessment: German and/or English								
07-MS2BIF1-152-	Bioinfo	rmatics	5 F1									
mo1	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate				
	Course	S			+ S (1) le taught in: Germ	an and/or English						
	Method of assessment			a) written examination (30 to 60 minutes, including multiple choice questions) or b) log (15 to 30 pages) or c) oral examination of one candidate each (30 to 60 minutes) or d) oral examination in groups of up to 3 candidates (30 to 60 minutes) or e) presentation (20 to 45 minutes) Language of assessment: German and/or English								

07-MS2BIF2-152-	Bioinfo	rmatics	F2									
mo1	ECTS	15	Duratio	n	1 semester	Method of grading (not) successfully completed	Modul level	graduate				
	Course	S			) + S (1) lle taught in: Germa	n and/or English	,					
	Method	d of ass	essment	b) log c) ora d) ora e) pre	a) written examination (30 to 60 minutes, including multiple choice questions) or b) log (15 to 30 pages) or c) oral examination of one candidate each (30 to 60 minutes) or d) oral examination in groups of up to 3 candidates (30 to 60 minutes) or e) presentation (20 to 45 minutes) Language of assessment: German and/or English							
07-MBI-B-152-m01	Bioinfo	rmatics	В		,		'					
	ECTS	5	Duratio	า	1 semester	Method of grading (not) successfully completed	Modul level	graduate				
	Course	S		V (2) Modu	lle taught in: Germa	n and/or English						
	Method of assessment			Students will be informed about the method, length and scope of the assessment prior to the course. Usually, one of the following options will be chosen: a) written examination (30 to 60 minutes, including multiple choice questions) or b) oral examination of one candidate each (30 to 60 minutes) or c) oral examination in groups of up to 3 candidates (30 to 60 minutes) Language of assessment: German and/or English								
07-MS3S-152-m01	, ,,											
	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate				
	Courses			V (2) + S (1) Module taught in: German and/or English								
	Method of assessment			a) written examination (30 to 60 minutes, including multiple choice questions) or c) oral examination of one candidate each (30 to 60 minutes) or d) oral examination in groups of up to 3 candidates (30 to 60 minutes) Language of assessment: German and/or English								
07-MS3SYF1-152-	System	ıs Biolo	gy F1									
mo1	ECTS	10	Duratio	1	1 semester	Method of grading numerical grade	Modul level	graduate				
	Courses			P (14) + S (1) Module taught in: German and/or English								
	Method of assessment			b) log c) ora d) ora e) pre	(15 to 30 pages) or l examination of on ll examination in gre esentation (20 to 45	e candidate each (30 to 60 minutes) or pups of up to 3 candidates (30 to 60 minutes) or	s) or					

07-MS3SYF2-152-	System	s Biolo	gy F2						ology F2									
mo1	ECTS	15	Duration	า	1 semester	Method of grading	(not) successfully completed	Modul level	graduate									
	Courses	S			+ S (1) le taught in: Germ	an and/or English												
	Method	l of ass	essment	b) log c) ora d) ora e) pre	a) written examination (30 to 60 minutes, including multiple choice questions) or b) log (15 to 30 pages) or c) oral examination of one candidate each (30 to 60 minutes) or d) oral examination in groups of up to 3 candidates (30 to 60 minutes) or e) presentation (20 to 45 minutes) Language of assessment: German and/or English													
07-MS-B-152-m01	System	s Biolo	gy B			1		,	,									
	ECTS	5	Duration	<u> </u>	1 semester	Method of grading	(not) successfully completed	Modul level	graduate									
	Course		-1	V (2) Modu	le taught in: Germ	an and/or English			,,,									
	Method	l of ass	essment	Stude wing on nation	nts will be informo options will be cho n of one candidate	ed about the method, losen: a) written examir	ation (30 to 60 minutes, includes) or c) oral examination in gro	ding multiple ch	ne course. Usually, one of the fol noice questions) or b) oral exami candidates (30 to 60 minutes)									
Application Subject	t Chemie	,																
o8-PCM1a-161-	Laser Spectroscopy																	
mo1	ECTS	5	Duration	1	1 semester	Method of grading	numerical grade	Modul level	graduate									
	Courses			S (2) + Ü (1) Module taught in: German or English														
	Method	l of ass	essment		a) written examination (approx. 90 minutes) or b) oral examination of one candidate each (approx. 20 minutes) Language of assessment: German and/or English													
08-PCM1b-161-	Advanc	ed Phy	sical Cher	nistry	(Lab)	,												
mo1	ECTS	5	Duration	1	1 semester	Method of grading	(not) successfully completed	Modul level	graduate									
	Courses	S		P (4) Modu	le taught in: Germ	an or English												
	Method	l of ass	essment	Vortestate/Nachtestate (pre and post-experiment examination talks approx. 15 minutes each, log approx. 5 to 10 pages each) and assessment of practical performance (2 to 4 random examinations)  Language of assessment: German and/or English														
	Additio	nal Info	rmation	Additi	onal information (	on module duration: b	ock taught lab course with app	rox. 20 working	g days.									
08-PCM2-161-m01	Statisti	cal Me	hanics a	nd Rea	ction Dynamics													
	ECTS	5	Duration	on 1 semester Method of grading numerical grade Modul level graduate														
	Courses	Courses			S (2) + Ü (1)  Module taught in: German or English													
	Method of assessment			a) written examination (approx. 90 minutes) or b) oral examination of one candidate each (approx. 20 minutes) or c) talk (approx. 30 minutes)  Language of assessment: German and/or English														
Master's with 1 major Co	mputational	Mathema	ics (2019)	<u> </u>		, 0	JMU Würzburg • generated 20-Okt-20	023 • exam. reg. data	record 88 f24 - - H 2019 page 19 / 4									

08-PCM3-161-m01	Nanoscale Materials											
	ECTS	5	Duration	1	1 semester	Method of grading nu	merical grade	Modul level	graduate			
	Course	S		S (2) · Modu	+ Ü (1) lle taught in: Germa	an or English						
	Method	d of asse	essment	a) written examination (approx. 90 minutes) or b) oral examination of one candidate each (approx. 20 minutes) or c) talk (approx. 30 minutes)  Language of assessment: German and/or English creditable for bonus								
08-PCM4-161-m01	Ultrafa	st spect	roscopy a	and qu								
	ECTS	5	Duration	1	1 semester	Method of grading nu	merical grade	Modul level	graduate			
	Course	S		S (2) · Modu	+ Ü (1) lle taught in: Germa	an or English						
	Method	d of asse	essment	prox.	30 minutes)	approx. 90 minutes) or b) t: German and/or English	oral examination of one car	ndidate each (a	pprox. 20 minutes) or c) talk (ap-			
	other p	rerequis	sites	Prior	Prior completion of modules o8-PCM1a and o8-PCM1b recommended.							
08-PCM5-161-m01	Physica	al Chem	istry of S	upram	oramolecular Assemblies							
	ECTS	5	Duration	1	1 semester	Method of grading nu	merical grade	Modul level	graduate			
	Course	S			S (2) + Ü (1) Module taught in: German or English							
	Method of assessment			a) written examination (approx. 90 minutes) or b) oral examination of one candidate each (approx. 20 minutes) or c) talk (approx. 30 minutes) Language of assessment: German and/or English								
08-PCM6-161-m01	Physical Chemistry (Advanced Lab)											
	ECTS	5	Duration	1	1 semester	Method of grading (ne	ot) successfully completed	Modul level	graduate			
	Course	S		P (4) Module taught in: German or English								
	Method	d of asse	essment	presentation (approx. 20 minutes) Language of assessment: German and/or English								
	Additio	nal Info	rmation	Addit	ional information c	n module duration: block	taught lab course with app	rox. 20 working	g days.			
08-TCM2-161-m01	Basics	and App	plications	of Qu	antum Chemistry							
	ECTS	5	Duration	1	1 semester	Method of grading nu	merical grade	Modul level	graduate			
	Course	S		S (2) ·	S (2) + Ü (2)							
	Method	d of asse	essment	a) written examination (approx. 90 to 180 minutes) or b) oral examination of one candidate each (20 to 30 minutes) or c) or examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or d) log (approx. 20 pages) or e) presenta (approx. 30 minutes)  Language of assessment: German and/or English								

o8-TCM3-161-mo1	Numerical Methods and Programming												
	ECTS	5	Duration	1	1 semester	Method of grading numerical grade	Modul level	graduate					
	Course	S	•	S (2)	+ Ü (2)	·	-						
	Method of assessment			exam (appr	a) written examination (approx. 90 to 180 minutes) or b) oral examination of one candidate each (20 to 30 minutes) or c) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or d) log (approx. 20 pages) or e) presentation (approx. 30 minutes) Language of assessment: German and/or English								
08-TCM4-161-m01	Quantum Dynamics												
	ECTS	5	Duration	1	1 semester	Method of grading numerical grade	Modul level	graduate					
	Course	S		S (2)	+ Ü (2)		`						
	Method	l of asse	essment	exam (appr	written examination (approx. 90 to 180 minutes) or b) oral examination of one candidate each (20 to 30 minutes) examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or d) log (approx. 20 pages) or e) pr expprox. 30 minutes) enguage of assessment: German and/or English								
08-TCM1-161-m01	Selecte	d Topic	s in Theo	retical	Chemistry								
	ECTS	5	Duration	1	1 semester	Method of grading numerical grade	Modul level	graduate					
	Course	S	-	S (2)	+ Ü (2)		,						
	Method of assessment			a) written examination (approx. 90 to 180 minutes) or b) oral examination of one candidate each (20 to 30 minutes) or c) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or d) log (approx. 20 pages) or e) presentation (approx. 30 minutes)  Language of assessment: German and/or English									
08-TCAP1-161-m01	Theore	tical Ch	emistry -	ry - Project course quantum chemistry									
	ECTS	5	Duration	1	1 semester	Method of grading (not) successfully completed	Modul level	graduate					
	Course	S		P (5)	_								
	Method of assessment			presentation (approx. 30 minutes) Language of assessment: German and/or English									
	Additio	nal Info	rmation	Addit	ional information o	n module duration: block taught lab course with ap	prox. 20 working	days.					
08-TCAP2-161-m01	Theore	tical Ch	emistry -	Projec	t course quantum d	ynamics							
	ECTS 5 Duratio			1	1 semester	Method of grading (not) successfully completed	Modul level	graduate					
	Course	S	•	P (5)									
	Method of assessment			presentation (approx. 30 minutes) Language of assessment: German and/or English									
	Additional Information			Additional information on module duration: block taught lab course with approx. 20 working days.									

Application Subject	t Computer Scie	nce and /	Aerosp	ace Computer Scien	ce						
10-l=SEM3-161-	Seminar 1 - Cui	rent Topi	ics in C	omputer Science							
mo1	ECTS 5	Duratio	า	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Courses		S (2)								
	Method of asse	essment	puter	term paper (10 to 15 pages) and presentation (30 to 45 minutes) with subsequent discussion on a topic from the field of computer science Language of assessment: German and/or English							
	Additional Info	rmation		Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT, SE, IT, IS, ES, LR, HCI.							
10-I=APR-161-m01	<b>Advanced Prog</b>	ramming									
	ECTS 5	Duration	1	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Courses		V (2) -	+ Ü (2)							
	Method of asse	essment	If ann of one date).	ritten examination (approx. 60 to 120 minutes). announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination fone candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candiate). anguage of assessment: German and/or English reditable for bonus							
	Additional Info	rmation		Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): SE,IS,LR, HCI, ES,GE							
10-l=AA-152-m01	Advanced Automation										
	ECTS 8 Duratio		1	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Courses		V (4) +	$V(4) + \ddot{U}(2)$							
	Method of asse	essment	written examination (approx. 60 to 120 minutes) creditable for bonus								
	Additional Info	rmation	Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): IT,IS,ES,LR,GE								
10-l=AGIS-161-m01	Algorithms for	Geograp	hic Info	ormation Systems							
	ECTS 5	Duratio	า	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Courses		V (2) -	+ Ü (2)							
	Method of asse		written examination (approx. 60 to 120 minutes).  If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).  Language of assessment: German and/or English creditable for bonus								
	Additional Info	rmation 	Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT,IS,HCI								

10-l=AG-161-m01	Compu	tationa	l Geometi	у	,			-				
	ECTS	5	Duratio	1	1 semester	Method of grading numerical grade	Modul level	graduate				
	Course	S		V (2) ·	+ Ü (2)	·						
	Method	d of ass	essment	If ann of one date). Langu	written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus							
				AT,HC		dents of the Master's programme Informatik (Com	puter Science, 120	o ECTS credits):				
10-I=APA-161-m01	Approx	imatio	n Algorith	ms	-							
	ECTS	5	Duratio	1	1 semester	Method of grading   numerical grade	Modul level	graduate				
	Course	S		V (2) ·	$(2) + \ddot{U}(2)$							
	Method of assessment			If ann of one date). Langu	written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus							
	Additional Information			Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT,IT,GE								
10-I=AUT-161-m01	Automa	ata The	ory									
	ECTS	5	Duratio		1 semester	Method of grading   numerical grade	Modul level	graduate				
	Course	S		$V(2) + \ddot{U}(2)$								
	Method	d of ass	essment	written examination (approx. 60 to 120 minutes).  If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).  Language of assessment: German and/or English creditable for bonus								
	Additio	nal Info	ormation	Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT,IT,ES,HCI,GE								

10-l=AVS-161-m01	Avionics Systems												
	ECTS	5 D	uration		1 semester	Method of gradir	numerical grade	1	Modul level	graduate			
	Courses	;		V (2) -	+ Ü (2)								
	Method	of assess				prox. 60 to 120 min							
				of one date). Langu	If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).  Language of assessment: German and/or English creditable for bonus								
	Addition	nal Inform		Focus ES,LR	Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): ES,LR								
10-HCI=M-	Multimo	odal User	Interfa	ces				,					
MUI-161-m01	ECTS	5 D	uration		1 semester	Method of gradir	numerical grade	1	Modul level	graduate			
	Courses	;		V (2) -	+ Ü (2)								
	Method	of assess		Langu	resentation of project results (approx. 40 minutes) anguage of assessment: German and/or English editable for bonus								
10-I=BER-161-m01	Computability Theory												
	ECTS	5 D	uration		1 semester	Method of gradir	numerical grade	1	Modul level	graduate			
	Courses	i		V (2) -	+ Ü (2)								
	Method	of assess		written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus									
	Addition	nal Inform			es available for st ,IT,IS,GE	udents of the Maste	r's programme Inform	atik (Compute	er Science, 12	o ECTS credits):			
07-BI-161-m01	Bioinfor	rmatics											
	ECTS	5 D	uration	l	1 semester	Method of gradir	numerical grade	1	Modul level	undergraduate			
	Courses	;		V (2) -	+ Ü (2)								
	Method	of assess		written examination (approx. 60 to 120 minutes).  If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).  Language of assessment: German and/or English creditable for bonus									

10-I=CB-161-m01	Compi	ler Cons	struction									
	ECTS	5	Duration	า	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	es		V (2)	+ Ü (2)			•				
	Metho	d of ass	essment	If ann of on date) Langu	written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English							
	Additional Information					udents of the Master's	programme Informatik	(Computer Science, 12	o ECTS credits):			
10-I=DDB-161-m01	Deduct	tive Dat	abases					'				
	ECTS 8 Duratio			1	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	es		V (4)	+ Ü (2)	•		•				
	Method of assessment			written examination (approx. 60 to 120 minutes).  If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).  Language of assessment: German and/or English creditable for bonus								
	Additional Information			Focus AT,SE		udents of the Master's	s programme Informatik	(Computer Science, 12	o ECTS credits):			
10-l=EL-161-m01	E-Learning											
	ECTS	5	Duration	1	0 0 0				graduate			
	Course	25		V (2)	V (2) + Ü (2)							
	Method of assessment			If ann of on date) Langu	written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per cadate). Language of assessment: German and/or English creditable for bonus							
	Additio	onal Info	ormation		ses available for sti IS,HCI,GE	udents of the Master's	s programme Informatik	(Computer Science, 12	o ECTS credits):			
10-MCS=H-	Introd	uction i	nto Humai	1-Com	puter Interaction							
Cl-161-mo1	ECTS	5	Duration	า	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	25		V (2) + Ü (2)								
	Method of assessment			presentation of project results (approx. 30 minutes) Language of assessment: German and/or English creditable for bonus								

10-l=ES-161-m01	Embed	ded Sys	stems					,				
	ECTS	8	Duration	1	1 semester	Method of grading nur	nerical grade	Modul level	graduate			
	Course	S		V (4) ·	+ Ü (2)	`		`				
	Method	of ass			written examination (approx. 60 to 120 minutes).							
				of one date).	f announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candilate).  anguage of assessment: German and/or English reditable for bonus  ocuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits):							
				credit								
				AT,SE	,ES,LR,GE	udents of the Master's pro	gramme Informatik (Com	iputer Science, 12	o ECTS credits):			
10-I=PA-161-m01	Analysi	is and [	Design of I	Progra	ms							
	ECTS 5 Duratio			1	1 semester	Method of grading nur	nerical grade	Modul level	graduate			
	Course	S		V (2) ·	+ Ü (2)				-			
	Method	d of ass	essment	written examination (approx. 60 to 120 minutes).  If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).  Language of assessment: German and/or English creditable for bonus								
	Additional Information				ses available for st ,ES,GE	udents of the Master's pro	gramme Informatik (Com	puter Science, 12	o ECTS credits):			
10-l=IR-161-m01	Information Retrieval											
	ECTS	5	Duration	า	1 semester	Method of grading nur	nerical grade	Modul level	graduate			
	Course	S		V (2) ·	V (2) + Ü (2)							
	Method of assessment			If ann of one date). Langu	written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examinat of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per can date). Language of assessment: German and/or English creditable for bonus							
	Additio	nal Info			ses available for st HCI,GE	udents of the Master's pro	gramme Informatik (Com	puter Science, 12	o ECTS credits):			
10-HCl=3DUI-161-	3D Use	r Interf	aces		,			'				
mo1	ECTS	5	Duration	1	1 semester	Method of grading nur	nerical grade	Modul level	graduate			
	Course	S		V (2) ·	+ Ü (2)	<u>.</u>						
	Method	d of ass	essment	Langu		results (approx. 30 minute nt: German and/or English	s)					

10-l=KT2-161-m01	Compu	tationa	l Complex	ity II							
	ECTS	5	Duration	1	1 semester	Method of grading   numerical grade	Modul level	graduate			
	Course	S		V (2)	+ Ü (2)						
	Method	d of ass	essment	written examination (approx. 60 to 120 minutes).  If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).  Language of assessment: German and/or English creditable for bonus							
	Additio	nal Info	ormation	Focus AT,SE		dents of the Master's programme Informatik (Com	nputer Science, 12	o ECTS credits):			
10-l=Kl1-161-m01	Artificia	al Intell	igence 1								
	ECTS	5	Duration	1	1 semester	Method of grading   numerical grade	Modul level	graduate			
	Course	S		V (2)	+ Ü (2)						
	Method of assessment			If ann of one date) Langu credit	written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus						
	Additional Information			Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT,SE,IS,HCI							
10-l=Kl2-161-m01	Artificia	al Intell	igence 2								
	ECTS	5	Duration	า	1 semester	Method of grading numerical grade	Modul level	graduate			
	Course	S		V (2)	V (2) + Ü (2)						
	Method of assessment			written examination (approx. 60 to 120 minutes).  If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).  Language of assessment: German and/or English creditable for bonus							
	Additio	nal Info	ormation	Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT,SE,IS,HCI,GE							

10-I=LVS-161-m01	Perforn	nance E	valuation	of Dis	tributed Systems			-		
	ECTS	8	Duration		1 semester	Method of grading   numerical grade	Modul level	graduate		
	Course	S		V (4)	+ Ü (2)			10		
				If anr of on date) Lange	written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus					
	Additio	nal Info	rmation	Focus AT,IT,		udents of the Master's programme Informatik	(Computer Science, 120	o ECTS credits):		
10-l=ML-161-m01	Mather	natical	Logic							
	ECTS	5	Duration	1	1 semester	Method of grading   numerical grade	Modul level	graduate		
	Course	S		V (2)	+ Ü (2)			<del>-</del>		
	Method of assessment			If anr of on date) Langu credi	If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral exam of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per date).  Language of assessment: German and/or English creditable for bonus					
	Additional Information			Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT,SE,IS,ES						
10-l=Ml-161-m01	Medica	l Inforn	natics		'		'			
	ECTS	5	Duration	ı	1 semester	Method of grading   numerical grade	Modul level	graduate		
	Course	S		V (2)	+ Ü (2)					
	Method	d of ass	essment	If anr of on date) Langu	written examination (approx. 60 to 120 minutes).  If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).  Language of assessment: German and/or English creditable for bonus					
	Additio	nal Info	rmation		Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): SE,IT,IS,HCI,GE					

10-I=PEB-161-m01	Perforr	nance Ei	ngineerin	g & Be	enchmarking of Co	mputer Systems			-	
	ECTS	5	Duratio	1	1 semester	Method of grading	numerical grade	Modul level	graduate	
	Course	:S	,	V (2)	+ Ü (2)			•	•	
				If ann of one date) Langu	written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus					
10-l=RAM-161-m01	Additio	nal Info	rmation		es available for stu ES,HCI,GE	idents of the Master's	programme Informatik (C	omputer Science, 120	o ECTS credits):	
	Compu	ter Arith	metic			,		''		
	ECTS	5	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate	
	Course	·S	•	V (2)	+ Ü (2)	<u> </u>				
	Method of assessment			If ann of one date) Langu	If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).  Language of assessment: German and/or English creditable for bonus					
	Additional Information			Focus AT,ES		idents of the Master's	programme Informatik (C	omputer Science, 12	ECTS credits):	
10-l=RO1-152-m01	Roboti	CS 1			''	'		'		
	ECTS	8	Duratio	า	1 semester	Method of grading	numerical grade	Modul level	graduate	
	Course	·S		V (4)	+ Ü (2)					
	Method	d of asse	essment		n examination (apparable for bonus	orox. 60 to 90 minutes	)			
	Additio	nal Info	rmation		es available for stu LR,HCI	idents of the Master's	programme Informatik (C	omputer Science, 12	ECTS credits):	
10-l=RO2-152-m01	Roboti	CS 2						,		
	ECTS	8	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate	
	Course	:S	·	V (4)	+ Ü (2)				-	
	Method	d of asse	essment		written examination (approx. 60 to 90 minutes) creditable for bonus					
				Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): IT,ES,LR						

10-l=ST-161-m01	Discret	te Event	Simulation	on							
	ECTS	8	Duration	1 semester		Method of grading numeric	al grade	Modul level	graduate		
	Course	·S		V (4) + Ü (2)		•		•	•		
				If announced by the of one candidate date). Language of asset	vritten examination (approx. 60 to 120 minutes). f announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candilate). anguage of assessment: German and/or English reditable for bonus						
	Additional Information			Focuses available IT,IS,ES,GE	ocuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits):						
10-HCI=RIS-161-	Real-Ti	me Inte	ractive Sy	/stems				'			
mo1	ECTS 5 Duration			1 semester		Method of grading   numeric	al grade	Modul level	graduate		
	Course	:S	,	V (2) + Ü (2)		•		•			
				of one candidate date). Language of asses	fannounced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examin of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per cal late). anguage of assessment: German and/or English reditable for bonus						
10-I=SAR-161-m01	Software Architecture										
	ECTS	5	Duration			Method of grading numeric	al grade	Modul level	graduate		
	Course	:S		V (2) + Ü (2)					_		
	Method of assessment			written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candida date). Language of assessment: German and/or English creditable for bonus							
	Additional Information			SE,IT,ES	for stu	dents of the Master's program	me Informatik (Con	nputer Science, 120	o ECTS credits):		
10-HCI=M-	Machir	ne Learr	ning (for U	ser Interfaces)							
LUI-161-m01	ECTS	5	Duration	1 semester		Method of grading numeric	al grade	Modul level	graduate		
	Course	·S		V (2) + Ü (2)							
	Method of assessment			presentation of project results (approx. 40 minutes) Language of assessment: German and/or English creditable for bonus							

10-I=VG-161-m01	Visuali	zation	of Graphs									
	ECTS	5	Duration	<u> </u>	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	25		V (2)	V (2) + Ü (2)							
	Metho	d of ass	sessment	If and of on date) Lang	written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus							
				AT,IT	HCI,GE	tudents of the Master's	s programme Informatik	(Computer Science, 120	ECTS credits):			
10-I=AKA-161-m01		ed Topi			i							
	ECTS	5	Duration	1	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	25		V (2)	+ Ü (2)							
				of on date) Lang credi	f announced by the lecturer at the beginning of the course, the written examination may be replaced by a of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 idate).  Language of assessment: German and/or English creditable for bonus							
	Additional Information			Focu:	Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits):  AT							
10-I=AKT-161-m01	Selecte	ed Topi	cs in Theo	ry								
	ECTS	5	Duration	1	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	es .		V (2)	V (2) + Ü (2)							
	Metho	d of ass	sessment	If and of on date) Lang	written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).  Language of assessment: German and/or English creditable for bonus							
	Additio	onal Inf	ormation	Focu: AT	Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits):							

10-l=SSS-172-m01	Securit	y of Sof	ftware Sy	stems			,	-			
	ECTS	5	Duratio	n	1 semester	Method of grading   numerical grade	Modul level	graduate			
	Course	S			+ Ü (2) le taught in: English						
	Additional Information			If ann of one date). Langu	written examination (approx. 60 to 120 minutes).  If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).  Language of assessment: English creditable for bonus						
				ES.	Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): SE, IS, LR, HCI, ES. Basic programming knowledge in C is required.						
10-l=NLP-182-m01	Machin	e Learn	ing for N	atural I	Language Processin	g					
	ECTS 5 Duration			n	1 semester	Method of grading numerical grade	Modul level	graduate			
L	Courses			V (2) ·	$V(2) + \ddot{U}(2)$						
				If ann of one date). Langu	written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candi- date). Language of assessment: German and/or English creditable for bonus						
				Focus	Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT, IS, HCI.						
10-l=PM-182-m01	Profess	ional P	roject Ma	nagen	ent		'				
	ECTS	5	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate			
	Course	S		V (4)	,		`				
	Method of assessment			written examination (approx. 60 to 120 minutes).  If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).  Language of assessment: German and/or English creditable for bonus							
	other p					of module 10-I=PRJAK is recommended.					
	Additio	Additional Information			es available for stud E.	dents of the Master's programme Informatik (	Computer Science, 12	o ECTS credits): SE, IT, IS, ES, LR,			

10-I=PRJAK-162-	Project	- Curre	nt Topics	in Com	puter Science						
mo1	ECTS	5	Duration	<u> </u>	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Courses	5	•	P (4)				•			
	Additional Information			Each   Asses Asses	project report (10 to 15 pages) and presentation of project (15 to 30 minutes)  Each project is offered one time only. The project will not be repeated; there will not be another project with the same topic.  Assessment can, therefore, only be offered for the project offered in the respective semester.  Assessment offered: In the semester in which the course is offered  Language of assessment: German and/or English						
					Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT, SE, IT, IS, ES, LR, HCI, GE.						
10-l=STM-162-m01	NLP and	d Text N	Mining								
	ECTS	5	Duration	1	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Courses	5		V (2) -	+ Ü (2)						
	Method of assessment			written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English							
	Additional Information		Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT, IT, HCI.								
Application Subject	t Physik										
11-BSV-161-mo1	Image a	and Sig	nal Proce	ssing i	n Physics						
	ECTS	6	Duration	1	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Courses	5		V (2) - Modu	- FÜ (2) le taught in: Germa	ın or English					
	Method	l of ass	essment	amina on/ta If a wr form o the le Asses	written examination (approx. 90 to 120 minutes) or oral examination of one candidate each (approx. 30 minutes) or oral examination in groups (groups of 2, approx. 30 minutes per candidate) or project report (approx. 8 to 10 pages) or 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. Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German and/or English						

11-QUI-161-m01	Quantu	ım Informatio	Techno	ology		"				
	ECTS	6 Dura	ion	1 semester	Method of grading numerical grade	Modul level	graduate			
	Course	S		V (3) + R (1) Module taught in: German or English						
	Method	d of assessme	amir on/t If a v form the l Asse	written examination (approx. 90 to 120 minutes) or oral examination of one candidate each (approx. 30 minutes) or oral exmination in groups (groups of 2, approx. 30 minutes per candidate) or project report (approx. 8 to 10 pages) or presentatin/talk (approx. 30 minutes).  To 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, ne lecturer must inform students about this by four weeks prior to the original examination date at the latest.  Ssessment offered: In the semester in which the course is offered and in the subsequent semester anguage of assessment: German and/or English						
11-PMM-161-mo1	Physics	s of Advanced	Materia	ls		'				
	ECTS	6 Dura	ion	1 semester	Method of grading numerical grade	Modul level	graduate			
	Course	S		( (3) + R (1)  Module taught in: German or English						
	Method	d of assessme	amir on/t If a v form the l Asse	written examination (approx. 90 to 120 minutes) or oral examination of one candidate each (approx. 30 minutes amination in groups (groups of 2, approx. 30 minutes per candidate) or project report (approx. 8 to 10 pages) of on/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instrorm of an oral examination of one candidate each or an oral examination in groups. If the method of assessment he lecturer must inform students about this by four weeks prior to the original examination date at the latest. Assessment offered: In the semester in which the course is offered and in the subsequent semester anguage of assessment: German and/or English						
11-SPI-161-m01	Spintro	nics								
	ECTS	6 Dura		1 semester	Method of grading numerical grade	Modul level	graduate			
	Course	s 		V (3) + R (1) Module taught in: German or English						
	Method	d of assessme	amir on/t If a v form the l Asse	written examination (approx. 90 to 120 minutes) or oral examination of one candidate each (approx. 30 minutes) or oral examination in groups (groups of 2, approx. 30 minutes per candidate) or project report (approx. 8 to 10 pages) or 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. Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German and/or English						

11-FK2-161-m01	Solid S	tate Ph	ysics 2							
	ECTS	8	Duration	1	1 semester	Method of grading numerical grade		Modul level	graduate	
	Course	S	,		+ R (2) ıle taught in: Germa	n or English				
	Method	Solid State Spectrocop			written examination (approx. 90 to 120 minutes) or oral examination of one candidate each (approx. 30 minutes) or oral exmination in groups (groups of 2, approx. 30 minutes per candidate) or project report (approx. 8 to 10 pages) or presentation/talk (approx. 30 minutes).  To 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, ne lecturer must inform students about this by four weeks prior to the original examination date at the latest.  Seessment offered: In the semester in which the course is offered and in the subsequent semester anguage of assessment: German and/or English					
11-FKS-161-m01	Solid S	tate Sp	ectrocopy	,						
	ECTS	6	Duration	า	1 semester	Method of grading numerical grade		Modul level	graduate	
	Courses				(3) + R (1) Module taught in: German or English					
	Method of assessment			amin on/ta If a w form the le Asses	written examination (approx. 90 to 120 minutes) or oral examination of one candidate each (approx. 30 minutes amination in groups (groups of 2, approx. 30 minutes per candidate) or project report (approx. 8 to 10 pages) of on/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instorm of an oral examination of one candidate each or an oral examination in groups. If the method of assessment he lecturer must inform students about this by four weeks prior to the original examination date at the latest. Assessment offered: In the semester in which the course is offered and in the subsequent semester anguage of assessment: German and/or English					
11-MAG-161-mo1	Magne	tism								
	ECTS	6	Duration		1 semester	Method of grading   numerical grade		Modul level	graduate	
	Course	S		V (3) + R (1) Module taught in: German or English						
	Method	l of ass	essment	written examination (approx. 90 to 120 minutes) or oral examination of one candidate each (approx. 30 minutes) or oral examination in groups (groups of 2, approx. 30 minutes per candidate) or project report (approx. 8 to 10 pages) or 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. Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German and/or English						

11-HLPH-161-m01	Semico	nductor Physics		1						
	ECTS	6 Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate			
	Course	S		+ R (1) ule taught in: Germa	n or English					
			amin on/ta If a w form the le Asse Lang	written examination (approx. 90 to 120 minutes) or oral examination of one candidate each (approx. 30 minutes) or oral examination in groups (groups of 2, approx. 30 minutes per candidate) or project report (approx. 8 to 10 pages) or 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. Assessment offered: In the semester in which the course is offered and in the subsequent semester anguage of assessment: German and/or English						
11-HNS-161-m01	Optical	Properties of Se	micor	ductor Nanostructui	res					
	ECTS	6 Duratio	n	1 semester	Method of grading   numerical grade	Modul level	graduate			
	Course	S		/ (3) + R (1) Module taught in: German or English						
	Method	d of assessment	amin on/ta If a w form the le Asse	written examination (approx. 90 to 120 minutes) or oral examination of one candidate each (approx. 30 minutes) or oral examination in groups (groups of 2, approx. 30 minutes per candidate) or project report (approx. 8 to 10 pages) or prese on/talk (approx. 30 minutes).  If a written examination was chosen as method of assessment, this may be changed and assessment may instead take form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is challed the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Assessment offered: In the semester in which the course is offered and in the subsequent semester anguage of assessment: German and/or English						
11-QTH-161-m01	Quantu	ım Transport								
	ECTS	6 Duratio		1 semester	Method of grading   numerical grade	Modul level	graduate			
	Course	S	V (3) + R (1) Module taught in: German or English							
	Method	d of assessment	written examination (approx. 90 to 120 minutes) or oral examination of one candidate each (approx. 30 minutes) or oral examination in groups (groups of 2, approx. 30 minutes per candidate) or project report (approx. 8 to 10 pages) or 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. Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German and/or English							

11-ASM-161-m01	Method	s of Ol	servation	al Ast	ronomy		'-					
	ECTS	6	Duratio	n	1 semester	Method of grading   numerical grade	Modul level	graduate				
	Course	S	,	V (3) - Modu	+ R (1) lle taught in: Germar	n or English	,					
	Method	l of ass	essment	amina on/ta If a wi form of the le Asses	written examination (approx. 90 to 120 minutes) or oral examination of one candidate each (approx. 30 minutes) or oral examination in groups (groups of 2, approx. 30 minutes per candidate) or project report (approx. 8 to 10 pages) or 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.  Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German and/or English							
11-TPE-161-m01	Experin	nental	Particle P	hysics								
	ECTS 6 Durati				1 semester	Method of grading   numerical grade	Modul level	graduate				
	Course	S			(3) + R (1) lodule taught in: German or English							
	Method	d of ass	essment	amina on/ta If a wiform of the le Asses	written examination (approx. 90 to 120 minutes) or oral examination of one candidate each (approx. 30 minutes) or oral examination in groups (groups of 2, approx. 30 minutes per candidate) or project report (approx. 8 to 10 pages) or 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.  Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German and/or English							
11-ASP-161-m01	Introdu	ction to	o Space P	hysics								
	ECTS	6	Duration		1 semester	Method of grading   numerical grade	Modul level	graduate				
	Course	S		V (3) + R (1) Module taught in: German or English								
	Method of assessment			written examination (approx. 90 to 120 minutes) or oral examination of one candidate each (approx. 30 minutes) or oral examination in groups (groups of 2, approx. 30 minutes per candidate) or project report (approx. 8 to 10 pages) or 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. Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German and/or English								

11-MAS-161-m01	Multi-v	wavelength	1 Astroi	nomy								
	ECTS	6 D	uration	1	1 semester	Method of grading numerical g	grade	Modul level	graduate			
	Course	S			+ R (1) ıle taught in: Germa	n or English		-				
	Method	d of assess		amina on/ta If a w form of the le Asses	ritten examination (approx. 90 to 120 minutes) or oral examination of one candidate each (approx. 30 minutes) or oral exmination in groups (groups of 2, approx. 30 minutes per candidate) or project report (approx. 8 to 10 pages) or presentatin/talk (approx. 30 minutes).  a written examination was chosen as method of assessment, this may be changed and assessment may instead take the orm 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.  Seessment offered: In the semester in which the course is offered and in the subsequent semester anguage of assessment: German and/or English							
11-QM2-161-m01	Quantu	ım Mechan	nics II									
	ECTS 8 Duratio			1	1 semester	Method of grading numerical s	grade	Modul level	undergraduate			
	Courses				(4) + R (2) Module taught in: German or English							
	Method	d of assess		amina on/ta If a w form of the le Asses	written examination (approx. 90 to 120 minutes) or oral examination of one candidate each (approx. 30 minutes) amination in groups (groups of 2, approx. 30 minutes per candidate) or project report (approx. 8 to 10 pages) or pon/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instea form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German and/or English							
11-RTT-161-m01	Theory	of Relativi	ity									
	ECTS	6 D	uration		1 semester	Method of grading   numerical g	grade	Modul level	graduate			
	Course	S		V (3) + R (1) Module taught in: German or English								
	Method	1 of assess		written examination (approx. 90 to 120 minutes) or oral examination of one candidate each (approx. 30 minutes) or oral examination in groups (groups of 2, approx. 30 minutes per candidate) or project report (approx. 8 to 10 pages) or 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.  Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German and/or English								

11-QVTP-161-m01	Many Body Quantum Theory											
	ECTS	8	Duration	1	1 semester	Method of gradin	g numerical grade	Mod	dul level	graduate		
	Course	S			V (4) + R (2) Module taught in: German or English							
	Method of assessment			amina on/ta If a w form the le Asses	written examination (approx. 90 to 120 minutes) or oral examination of one candidate each (approx. 30 minutes) or oral exmination in groups (groups of 2, approx. 30 minutes per candidate) or project report (approx. 8 to 10 pages) or presentation/talk (approx. 30 minutes).  To a written examination was chosen as method of assessment, this may be changed and assessment may instead take the orm 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.  Assessment offered: In the semester in which the course is offered and in the subsequent semester anguage of assessment: German and/or English							
11-PKS-161-mo1	Physics	s of Com	plex Sys	tems								
	ECTS	6	Duration	1	1 semester	Method of gradin	g numerical grade	Mod	dul level	graduate		
	Course	S			+ R (2) Ile taught in: Germ	an or English						
		d of asse		aming on/ta If a w form the le Asses Lange	written examination (approx. 90 to 120 minutes) or oral examination of one candidate each (approx. 30 minutes) or oral examination in groups (groups of 2, approx. 30 minutes per candidate) or project report (approx. 8 to 10 pages) or 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. Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German and/or English							
11-QIC-161-m01	Quantu	ım Inforn	nation ar	ıd Qua	intum Computing							
	ECTS	6	Duration		1 semester	Method of gradin	g numerical grade	Mod	dul level	graduate		
	Course	S		V (3) + R (1) Module taught in: German or English								
	Method	d of asse		written examination (approx. 90 to 120 minutes) or oral examination of one candidate each (approx. 30 minutes) or oral examination in groups (groups of 2, approx. 30 minutes per candidate) or project report (approx. 8 to 10 pages) or 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.  Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German and/or English								
	Module comple	es succes eted	ssfully	11-Q/\	12 or 11-TFK				_			

11-TFK-161-m01	Theore	tical Sc	olid State	Physic	:s							
	ECTS	8	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	S			V (4) + R (2) Module taught in: German or English							
				amina on/ta If a w form the le Asses Lange	written examination (approx. 90 to 120 minutes) or oral examination of one candidate each (approx. 30 minutes) or oral examination in groups (groups of 2, approx. 30 minutes per candidate) or project report (approx. 8 to 10 pages) or 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. Assessment offered: In the semester in which the course is offered and in the subsequent semester anguage of assessment: German and/or English							
11-TFK2-161-m01			lid State	_ <u> </u>	:5 2							
	ECTS	8	Duratio	,	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	S			/ (4) + R (2) Module taught in: German or English							
				amina on/ta If a w form the le Asses Lange	written examination (approx. 90 to 120 minutes) or oral examination of one candidate each (approx. 30 amination in groups (groups of 2, approx. 30 minutes per candidate) or project report (approx. 8 to 10 p on/talk (approx. 30 minutes).  If a written examination was chosen as method of assessment, this may be changed and assessment m form of an oral examination of one candidate each or an oral examination in groups. If the method of as the lecturer must inform students about this by four weeks prior to the original examination date at the Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German and/or English							
11-FTFK-161-m01	Field T	heory ii	1 Solid Sta	ate Phy	ysics							
	ECTS	8	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	:S		V (4) + R (2) Module taught in: German or English								
	Method	d of ass	essment	written examination (approx. 90 to 120 minutes) or oral examination of one candidate each (approx. 30 minutes) or oral examination in groups (groups of 2, approx. 30 minutes per candidate) or project report (approx. 8 to 10 pages) or 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. Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German and/or English								

11-TOPO-161-m01	Topolog	gical Order									
	ECTS	6 Durati	on	1 semester	Method of grading numerical grade	Modul level	graduate				
	Course	S		+ R (1) ule taught in: Germar	n or English						
	Method	d of assessmen	amin on/ta If a w form the la Asse	ation in groups (grou alk (approx. 30 minut written examination w of an oral examination ecturer must inform s ssment offered: In th	rox. 90 to 120 minutes) or oral examination of oups of 2, approx. 30 minutes per candidate) or tes).  vas chosen as method of assessment, this may on of one candidate each or an oral examination students about this by four weeks prior to the one semester in which the course is offered and its German and/or English	project report (approruse) be changed and asson in groups. If the moriginal examination	sessment may instead take the ethod of assessment is changed, date at the latest.				
11-TFP-161-m01		gy in Solid Stat		cs							
	ECTS	6 Durati		1 semester	Method of grading   numerical grade	Modul level	graduate				
	Course	S		( (3) + R (1)  Module taught in: German or English							
	Method	d of assessmen	amin on/ta If a w form the la Asse	written examination (approx. 90 to 120 minutes) or oral examination of one candidate each (approx. 30 minutes) of amination in groups (groups of 2, approx. 30 minutes per candidate) or project report (approx. 8 to 10 pages) or proportial (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment he lecturer must inform students about this by four weeks prior to the original examination date at the latest. Assessment offered: In the semester in which the course is offered and in the subsequent semester anguage of assessment: German and/or English							
11-TSL-161-m01	Theory	of Supercondu	tivity								
	ECTS	6 Durati		1 semester	Method of grading   numerical grade	Modul level	graduate				
	Course	s 		V (3) + R (1) Module taught in: German or English							
	Method	d of assessmen	amin on/ta If a w form the la Asse	written examination (approx. 90 to 120 minutes) or oral examination of one candidate each (approx. 30 minutes) or oral examination in groups (groups of 2, approx. 30 minutes per candidate) or project report (approx. 8 to 10 pages) or 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. Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German and/or English							

11-CMS-161-m01	Compu	tational	Material	s Scie	nce (DFT)							
	ECTS	8	Duration	ı	1 semester	Method of grading num	erical grade	Modul level	graduate			
	Course	S			+ R (2) ıle taught in: Germaı	n or English						
	Conformal Field Theory			amin on/ta If a w form the le Asses	tten examination (approx. 90 to 120 minutes) or oral examination of one candidate each (approx. 30 minutes) or oral exination in groups (groups of 2, approx. 30 minutes per candidate) or project report (approx. 8 to 10 pages) or presentatifalk (approx. 30 minutes).  written examination was chosen as method of assessment, this may be changed and assessment may instead take the mof an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed lecturer must inform students about this by four weeks prior to the original examination date at the latest. Sessment offered: In the semester in which the course is offered and in the subsequent semester and/or English							
11-KFT-161-m01	Confor	mal Fiel	d Theory									
	ECTS 6 Duratio			ı	1 semester	Method of grading num	erical grade	Modul level	graduate			
	Courses				(3) + R (1) Nodule taught in: German or English							
	Method	1 OI dSSE	essment	amin on/ta If a w form the le Asses	ation in groups (grou llk (approx. 30 minut ritten examination w							
11-KFT2-161-m01	Confor	mal Fiel	d Theory	2								
	ECTS	6	Duration		1 semester	Method of grading num	erical grade	Modul level	graduate			
	Course	S		V (3) + R (1) Module taught in: German or English								
	Method	l of asse	essment	written examination (approx. 90 to 120 minutes) or oral examination of one candidate each (approx. 30 minutes) or oral examination in groups (groups of 2, approx. 30 minutes per candidate) or project report (approx. 8 to 10 pages) or 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. Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German and/or English								

11-MSF-161-m01	Magne	tism ar	nd Spin Flu	iids	-							
	ECTS	6	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate				
	Course	S	`		+ R (1) ule taught in: Geri	man or English	,					
	Method	d of ass	sessment	amin on/ta If a w form the lo	itten examination (approx. 90 to 120 minutes) or oral examination of one candidate each (approx. 30 minutes) or oral nination in groups (groups of 2, approx. 30 minutes per candidate) or project report (approx. 8 to 10 pages) or present /talk (approx. 30 minutes).  a written examination was chosen as method of assessment, this may be changed and assessment may instead take or of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is characteristic electurer must inform students about this by four weeks prior to the original examination date at the latest. sessment offered: In the semester in which the course is offered and in the subsequent semester in guage of assessment: German and/or English							
11-TQP-161-m01			uantum P	<u> </u>	5							
	ECTS	6	Duratio		1 semester	Method of grading   numerical grade	Modul level	graduate				
	Course	S			(3) + R (1) odule taught in: German or English							
			sessment	amin on/ta If a w form the la Asse Lang	written examination (approx. 90 to 120 minutes) or oral examination of one candidate each (approx. 30 minutes) in groups (groups of 2, approx. 30 minutes per candidate) or project report (approx. 8 to 10 pages on/talk (approx. 30 minutes).  If a written examination was chosen as method of assessment, this may be changed and assessment may in orm of an oral examination of one candidate each or an oral examination in groups. If the method of assess the lecturer must inform students about this by four weeks prior to the original examination date at the lates assessment offered: In the semester in which the course is offered and in the subsequent semester anguage of assessment: German and/or English							
11-CRP-161-m01	Renorn	nalizati	ion Group	and C	ritical Phenomen	a						
	ECTS	6	Duratio		1 semester	Method of grading   numerical grade	Modul level	graduate				
	Course	S		V (3) + R (1) Module taught in: German or English								
	Method	d of ass	sessment	amin on/ta If a w form the la Asse	written examination (approx. 90 to 120 minutes) or oral examination of one candidate each (approx. 30 minutes) or oral examination in groups (groups of 2, approx. 30 minutes per candidate) or project report (approx. 8 to 10 pages) or 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. Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German and/or English							

11-BWW-161-mo1	Bosoni	sation	and Intera	ctions	in One Dimension						
	ECTS	6	Duratio	1	1 semester	Method of grading numerical grade	Modul level	graduate			
	Course	S	·	V (3) - Modu	+ R (1) le taught in: Germar	n or English					
					itten examination (approx. 90 to 120 minutes) or oral examination of one candidate each (approx. 30 minutes) ination in groups (groups of 2, approx. 30 minutes per candidate) or project report (approx. 8 to 10 pages) or postalk (approx. 30 minutes). It written examination was chosen as method of assessment, this may be changed and assessment may insteat may or an oral examination of one candidate each or an oral examination in groups. If the method of assessment electurer must inform students about this by four weeks prior to the original examination date at the latest. Seessment offered: In the semester in which the course is offered and in the subsequent semester in guage of assessment: German and/or English						
11-EIT-161-m01	Gauge	Theorie	es				,				
	ECTS	6	Duratio		1 semester	Method of grading   numerical grade	Modul level	graduate			
	Course	S			+ R (1) ule taught in: German or English						
	Method	d of ass	essment	amina on/ta If a wi form of the le Asses	ation in groups (grou lk (approx. 30 minut ritten examination w of an oral examinatio cturer must inform s ssment offered: In th	rox. 90 to 120 minutes) or oral examination ups of 2, approx. 30 minutes per candidate) tes). vas chosen as method of assessment, this ron of one candidate each or an oral examin students about this by four weeks prior to the semester in which the course is offered as German and/or English	or project report (appromay be changed and assation in groups. If the mage original examination of	ex. 8 to 10 pages) or presentati- sessment may instead take the ethod of assessment is changed, date at the latest.			
11-GGD-161-mo1	Introdu	ction to	o Gauge/G	Gravity	Duality						
	ECTS	8	Duratio		1 semester	Method of grading   numerical grade	Modul level	graduate			
	Course	S			V (4) + R (2) Module taught in: German or English						
	Method of assessment			written examination (approx. 90 to 120 minutes) or oral examination of one candidate each (approx. 30 minutes) or oral examination in groups (groups of 2, approx. 30 minutes per candidate) or project report (approx. 8 to 10 pages) or 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 chang the lecturer must inform students about this by four weeks prior to the original examination date at the latest.  Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German and/or English							

11-EFQ-161-m01	Introdu	ction to Frac	ional Qu	antisation							
	ECTS	6 Dura	tion	1 semester	Method of grading numerical grade	Modul level	graduate				
	Course	S		) + R (1) Iule taught in: Germa	n or English	•					
			amir on/t If a v form the l Asse Lang	written examination (approx. 90 to 120 minutes) or oral examination of one candidate each (approx. 30 minutes) or oral examination in groups (groups of 2, approx. 30 minutes per candidate) or project report (approx. 8 to 10 pages) or 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.  Assessment offered: In the semester in which the course is offered and in the subsequent semester anguage of assessment: German and/or English							
11-TEF-161-m01	Topolo	gical Effects	ı Electro	nic Systems							
	ECTS	6 Dura	tion	1 semester	Method of grading   numerical grade	Modul level	graduate				
	Course	S		('(3) + R (1) Module taught in: German or English							
	Method	d of assessmo	amir on/t If a v form the I Asse	nation in groups (grou alk (approx. 30 minu written examination w	(approx. 30 minutes) or oral ex- ox. 8 to 10 pages) or presentati- sessment may instead take the ethod of assessment is changed, date at the latest.						
11-FTAS-161-m01	Field Th	neoretical As	ects of S	Solid State Physics							
	ECTS	6 Dura	tion	1 semester	Method of grading   numerical grade	Modul level	graduate				
	Course	S		V (3) + R (1) Module taught in: German or English							
	Method	d of assessmo	amir on/t If a v form the l Asse	written examination (approx. 90 to 120 minutes) or oral examination of one candidate each (approx. 30 minutes) or oral examination in groups (groups of 2, approx. 30 minutes per candidate) or project report (approx. 8 to 10 pages) or 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.  Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German and/or English							

11-AKM-161-mo1	Cosmo	logy						"			
	ECTS	6	Duratio	n	1 semester	Method of grading nur	nerical grade	Modul level	graduate		
	Course	S		V (3) - Modu	+ R (1) lle taught in: Germa	n or English		,			
				amina on/ta If a wi form of the le Asses Langu	written examination (approx. 90 to 120 minutes) or oral examination of one candidate each (approx. 30 minutes) or oral examination in groups (groups of 2, approx. 30 minutes per candidate) or project report (approx. 8 to 10 pages) or 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. Assessment offered: In the semester in which the course is offered and in the subsequent semester anguage of assessment: German and/or English						
11-AST-161-m01			trophysic	S							
	ECTS	6	Duratio	n	1 semester	Method of grading nur	nerical grade	Modul level	graduate		
	Course	S		V (2) · Modu	+ R (2) ıle taught in: Germaı	n or English					
	Method	of ass	essment	amina on/ta If a wiform of the le Asses	written examination (approx. 90 to 120 minutes) or oral examination of one candidate each (approx. 30 minutes) or amination in groups (groups of 2, approx. 30 minutes per candidate) or project report (approx. 8 to 10 pages) or preson/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead to orm of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Assessment offered: In the semester in which the course is offered and in the subsequent semester language of assessment: German and/or English						
11-APL-161-m01	High Er	nergy A	strophysi	cs							
	ECTS	6	Duratio	n	1 semester	Method of grading nur	nerical grade	Modul level	graduate		
	Course	S		V (3) + R (1) Module taught in: German or English							
	Method of assessment				written examination (approx. 90 to 120 minutes) or oral examination of one candidate each (approx. 30 minutes) or oral examination in groups (groups of 2, approx. 30 minutes per candidate) or project report (approx. 8 to 10 pages) or 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. Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German and/or English						

11-RQFT-161-m01	Relativ	istic Qı	uantum Fi	eld The	eory		<u> </u>		
	ECTS	8	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate	
	Course	S			+ R (2) le taught in: Germar	n or English	·		
	Method	d of ass	essment	amina on/ta If a wi form of the le Asses	ation in groups (grou lk (approx. 30 minut ritten examination w	(approx. 30 minutes) or oral exox. 8 to 10 pages) or presentationsessment may instead take the ethod of assessment is changed, date at the latest.			
11-QFT2-161-m01	Quantu	ım Field	Theory I						
	ECTS	8	Duratio	1	1 semester	Method of grading   numerical grade	Modul level	graduate	
	Course	S		V (4) - Modu	+ R (2) lle taught in: Germar	n or English			
	Method	d of ass	essment	written examination (approx. 90 to 120 minutes) or oral examination of one candidate each (approx. 30 minute amination in groups (groups of 2, approx. 30 minutes per candidate) or project report (approx. 8 to 10 pages) on/talk (approx. 30 minutes).  If a written examination was chosen as method of assessment, this may be changed and assessment may ins form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment electurer must inform students about this by four weeks prior to the original examination date at the latest. Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German and/or English					
11-TEP-161-m01	Theore	tical Ele	ementary	Particl	e Physics				
	ECTS	8	Duratio		1 semester	Method of grading   numerical grade	Modul level	graduate	
	Course	S		V (4) + R (2) Module taught in: German or English					
	Method of assessment			written examination (approx. 90 to 120 minutes) or oral examination of one candidate each (approx. 30 minutes) or oral examination in groups (groups of 2, approx. 30 minutes per candidate) or project report (approx. 8 to 10 pages) or presentat on/talk (approx. 30 minutes).  If a written examination was chosen as method of assessment, this may be changed and assessment may instead take th form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed the lecturer must inform students about this by four weeks prior to the original examination date at the latest.  Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German and/or English					

11-ATTP-161-m01	Selecte	d Topic	s of Theo	retical	Elementary Particle	e Physics					
	ECTS	6	Duratio	1	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	S	,	V (3) ·				•			
					le taught in: Germa						
				amina on/ta If a w form of the le Asses Langu	written examination (approx. 90 to 120 minutes) or oral examination of one candidate each (approx. 30 minutes) or oral examination in groups (groups of 2, approx. 30 minutes per candidate) or project report (approx. 8 to 10 pages) or 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.  Assessment offered: In the semester in which the course is offered and in the subsequent semester  Language of assessment: German and/or English						
11-BSM-161-m01	Models	odels Beyond the Standard Model of Elementary Particle Physics									
	ECTS	6	Duratio	า	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	S		V (3) + R (1) Module taught in: German or English							
	Method of assessme				ation in groups (gro lk (approx. 30 minu ritten examination v of an oral examinati cturer must inform ssment offered: In th	ups of 2, approx. 30 r tes). vas chosen as metho on of one candidate students about this b	by four weeks prior to the originate the course is offered and in the	ct report (appro hanged and ass groups. If the m al examination o	x. 8 to 10 pages) or presentati- ressment may instead take the ethod of assessment is changed, date at the latest.		
Thesis (30 ECTS cre	edits)										
10-M=MACM-161-	Master	Thesis	Computa	tional	Mathematics						
mo1	ECTS	30	Duratio	1	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	S		No co	urses assigned to n	nodule					
	Method	l of ass	essment	Master's thesis (750 to 900 hours total) Registration and assignment of topic in consultation with supervisor. Language of assessment: German or English							
	Additio	nal Info	rmation	Time	to complete: 6 mon	ths.					