

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} = field trip, \mathbf{K} = colloquium, \mathbf{O} = conversatorium, \mathbf{P} = placement/lab course, \mathbf{R} = project, \mathbf{S} = seminar, \mathbf{T} = tutorial, $\ddot{\mathbf{U}}$ = exercise = lecture							
	Term: SS = summer semester, WS = winter semester							
	Methods of grading: NUM = numerical grade, B/NB = (not) successfully completed							
	Regulations: (L)ASPO = general academic and examination regulations (for teaching-degree programmes), FSB = subject-specific provisions, SFB = list of modules							
	Other: A = thesis, LV = course(s), PL = assessment(s), TN = participants, VL = prerequisite(s)							
Conventions for the modules in this SFB:	Unless otherwise stated, courses and assessments will be held in German, assessments will be offered every semester and modules are not cre- ditable for bonus.							
Information on assessment procedures:	Should there be the option to choose between several methods of assessment, the lecturer will agree with the module coordinator on the me- thod of assessment to be used in the current semester by two weeks after the start of the course at the latest and will communicate this in the customary manner.							
	Should a module comprise more than one graded assessment, all assessments will be equally weighted, unless otherwise stated below.							
	Should the assessment comprise several individual assessments, successful completion of the module will require successful completion of all individual assessments.							

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

ASPO2015

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

27-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	cified in the form X	(y) with course type >	(abbreviated as specified abo	ve and number of we	ekly contact hours y			
	Method of as	ssessme	ent								
	Only after su completion of		Il if applica	ble							
	Other prereq	uisites	if applica	if applicable							
	Participants on of places		ocati- if applica	ble							
	Additional in	Iformati	on if applica	ble							
	Referred to in	n LPO I	if applica	ble (examination re	gulations for teachin	g-degree programmes)					

Compulsory Electi	ves (90 E	CTS cre	edits)								
Subfield Numerica	l Mather	natics a	nd Optim	izatior	n (30 ECTS credits)						
10-M=AAAN-161-	Applie	Applied Analysis									
m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate			
	Course	S			+ Ü (2) Ile taught in: Germ	an and/or English					
	Metho	d of ass	essment	a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus							
10-M=VOP-	Selecte	ed Topio	cs in Opti	mizatio	on						
T-161-m01	ECTS 10 Duratio		n	1 semester	Method of grading numerical grade	Modul level	graduate				
	Course	Courses		V (4) + Ü (2) Module taught in: German and/or English							
	Method of assessment			b) ora c) ora Langu Asses	ll examination of o l examination in g lage of assessmen	(approx. 90 to 120 minutes, usually chosen) of one candidate each (approx. 20 minutes) or roups (groups of 2, 15 minutes per candidate) nt: German or English the semester in which the course is offered an		emester			
10-M=VMPH-161-	Selecte	ed Topio	cs in Math	ematio	cal Physics						
m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate			
	Course	Courses			V (4) + Ü (2) Module taught in: German and/or English						
	Method of assessment			b) ora c) ora Langu Asses	ll examination of o l examination in g lage of assessmen	(approx. 90 to 120 minutes, usually chosen) or one candidate each (approx. 20 minutes) or roups (groups of 2, 15 minutes per candidate) ot: German or English the semester in which the course is offered an		emester			

10-M=AOP-	Basics	in Opt	imization								
T-161-m01	ECTS	ECTS 10 Duration			1 semester	Method of grading	g numerical grade	Modul level	graduate		
	Course	25			V (4) + Ü (2) Module taught in: German and/or English						
	Metho	d of as:	sessment	b) oral c) oral Langua Assess	a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus						
10-M=V-	Mathe	matica	l Continuu	m Mech	nanics						
KOM-161-m01	ECTS	5	Duratio	n	1 semester	Method of gradin	g numerical grade	Modul level	graduate		
	Course	es		V (3) + Modul		nan and/or English					
	Metho	d of as:	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) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus					emester		
10-M=ANG-	Numer	Numeric of Large Systems of Equations									
G-161-m01	ECTS	10	Duratio	n	1 semester	Method of grading	g numerical grade	Modul level	graduate		
	Course	Courses			V (4) + Ü (2) Module taught in: German and/or English						
	Method of assessment			b) oral c) oral Langua Assess	examination of examination in age of assessme	one candidate each (a groups (groups of 2, 1 nt: German or English	approx. 20 minutes) or 5 minutes per candidate		emester		
10-M=VN-	Numer	ic of Pa	artial Diffe	rential E	Equations						
PE-161-m01	ECTS	10	Duratio	n	1 semester	Method of grading	g numerical grade	Modul level	graduate		
	Course	25		V (4) + Ü (2) Module taught in: German and/or English							
	Method of assessment			b) oral c) oral Langua Assess	a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus						

Master's with 1 major Computational Mathematics (2019)	JMU Würzburg • generated 19-Apr-2025 • exam. reg. data record 88 f24 - - H 2019	page 4 / 50

10-M=VOST-161-	Optimal C	ontrol								
m01	ECTS 5	Du	ration	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Courses			V (3) + Ü (1) Module taught in: German and/or English						
	Method of	fassessm	b) or c) or Lang Asse	ral examination of or al examination in gr guage of assessment	ne candidate each (ap oups (groups of 2, apj t: German or English	tes, usually chosen) or prox. 15 minutes) or prox. 10 minutes per candidate the course is offered and in the		emester		
10-M=VI-	Inverse Pr	oblems								
PR-161-m01	ECTS 5	Du	ration	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Courses			+ Ü (1) ule taught in: Germa	an and/or English					
	Method of	fassessm	b) or c) or Lang Asse	a) written examination (approx. 60 to 90 minutes, usually chosen) or b) oral examination of one candidate each (approx. 15 minutes) or c) oral examination in groups (groups of 2, approx. 10 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus						
10-M=V-	Selected 1	Topics in	Numerical	and Applied Mathe	matics					
NAM-192-m01	ECTS 10) Du	ration	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Courses			V (4) + Ü (2) Module taught in: German and/or English						
	Method of	fassessm	b) or c) or Lang Asse	a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus						
Subfield Mathemat	ics (10 ECT	S credits)							
10-M=AAL-	Topics in <i>I</i>									
G-161-m01	ECTS 10		ration	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Courses			V (4) + Ü (2) Module taught in: German and/or 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) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus						
Master's with 1 major Co	nputational Ma	tnematics (20	019)			JMU Würzburg • generated 19-Apr-20	025 • exam. reg. data r	record 88 t24 - - H 2019	page 5 / 50	

10-M=ADG-	Differe	ntial Ge	ometry							
M-161-m01	ECTS	10	Duratio	1	1 semester	Method of grading numerical grade	M	odul level	graduate	
	Course	S			V (4) + Ü (2) Module taught in: German and/or English					
	Metho	d of ass	essment	b) ora c) ora Lang Asses	a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus					
10-M=AFT-	Comple	ex Analy	/sis							
H-161-m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade	М	odul level	graduate	
	Course	S			+ Ü (2) ıle taught in: Germ	an and/or English				
	Metho	d of ass	essment	 a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus 						
10-M=AGMS-161-	Geome	tric Stru	uctures							
m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade	М	odul level	graduate	
	Courses				V (4) + Ü (2) Module taught in: German and/or English					
	Metho	d of ass	essment	a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus				emester		
10-M=AIST-161-	Indust	rial Stat	istics 1							
m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade	М	odul level	graduate	
	Course	S		V (4) + Ü (2) Module taught in: German and/or English						
	Metho	d of ass	essment	b) ora c) ora Langi Asses	a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus					

Master's with 1 major Computational Mathematics (2019)	JMU Würzburg • generated 19-Apr-2025 • exam. reg. data record 88 f24 - - H 2019	page 6 / 50

10-M=ALTH-161-	Lie The	eory								
m01	ECTS 10 Duration			n	1 semester	Method of grading numerical grade	Modul level	graduate		
	Course	S			V (4) + Ü (2) Module taught in: German and/or English					
	Metho	d of ass	essment	b) ora c) ora Langu Asses	a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus					
10-M=ARTH-161-	Contro	l Theory	/							
m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate		
	Course	S			+ Ü (2) Ile taught in: Germ	nan and/or English				
	Metho	d of ass	essment	 a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus 						
10-M=ASM-	Stochastic Models of Risk Management									
R-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						
	Metho	d of ass	essment	a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus				emester		
10-M=AST-	Stocha	stical P	rocesses							
P-161-m01	ECTS	10	Duratio		1 semester	Method of grading numerical grade	Modul level	graduate		
	Course	Courses		V (4) + Ü (2) Module taught in: German and/or English						
	Metho	d of ass	essment	b) ora c) ora Langu Asses	ritten examination (approx. 90 to 120 minutes, usually chosen) or ral examination of one candidate each (approx. 20 minutes) or ral examination in groups (groups of 2, 15 minutes per candidate) guage of assessment: German or English essment offered: In the semester in which the course is offered and in the subsequent semester itable for bonus					

Master's with 1 major Computational Mathematics (2019)	JMU Würzburg • generated 19-Apr-2025 • exam. reg. data record 88 f24 - - H 2019	page 7 / 50

10-M=A-	Topolo	gy								
TOP-161-m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate		
	Course	S			V (4) + Ü (2) Module taught in: German and/or English					
	Metho	d of ass	essment	b) ora c) ora Lang Asses	a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus					
10-M=AVS-	Insura	nce Mat	hematics	1						
M-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				
	Metho	d of ass	essment	b) ora c) ora Lang Asses	 a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus 					
10-M=AZ-	Time Series Analysis 1									
RA-161-m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate		
	Courses			V (4) + Ü (2) Module taught in: German and/or English						
	Metho	d of ass	essment	a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus				emester		
10-M=AZTH-161-	Numbe	er Theor	y							
m01	ECTS	10	Duratio		1 semester	Method of grading numerical grade	Modul level	graduate		
	Courses			V (4) + Ü (2) Module taught in: German and/or English						
	Metho	d of ass	essment	b) ora c) ora Langi Asses	written examination (approx. 90 to 120 minutes, usually chosen) or oral examination of one candidate each (approx. 20 minutes) or oral examination in groups (groups of 2, 15 minutes per candidate) nguage of assessment: German or English sessment offered: In the semester in which the course is offered and in the subsequent semester ditable for bonus					

Master's with 1 major Computational Mathematics (2019)	JMU Würzburg • generated 19-Apr-2025 • exam. reg. data record 88 f24 - - H 2019	page 8 / 50

10-M=AGP-	Giovan	ni Prodi	i Lecture ((Maste	er)					
Cin-152-m01	ECTS 5 Duration			n	1 semester	Method of grading numerical grade	Modul level	graduate		
	Course	S			+ Ü (1) ıle taught in: Engli	sh				
	Method	d of ass	essment	b) ora c) ora Lang Asses	al examination of c Il examination in g Jage of assessmer	(approx. 60 to 90 minutes, usually chosen) or one candidate each (approx. 15 minutes) or roups (groups of 2, approx. 10 minutes per can nt: English the semester in which the course is offered and		emester		
10-M=VA-	Selecte	ed Topic	s in Anal	ysis						
NA-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				
	Methoo	d of ass	essment	b) ora c) ora Lang Asses	al examination of c Il examination in g Jage of assessmer	(approx. 90 to 120 minutes, usually chosen) or one candidate each (approx. 20 minutes) or roups (groups of 2, 15 minutes per candidate) nt: German or English the semester in which the course is offered and		emester		
10-M=VFN-	Selected Topics in Financial Mathematics									
M-161-m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate		
	Courses				V (4) + Ü (2) Module taught in: German and/or English					
	Methoo	d of ass	essment	b) ora c) ora Langi Asses	a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus					
10-M=VGDS-161-	Groups	and th	eir Repre	sentat	ions					
m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate		
	Course	S			V (4) + Ü (2) Module taught in: German and/or English					
	Methoo	d of ass	essment	b) ora c) ora Langi Asses	al examination of c Il examination in g Jage of assessmer	(approx. 90 to 120 minutes, usually chosen) or one candidate each (approx. 20 minutes) or roups (groups of 2, 15 minutes per candidate) nt: German or English the semester in which the course is offered and		emester		

Master's with 1 major Computational Mathematics (2019)	JMU Würzburg • generated 19-Apr-2025 • exam. reg. data record 88 f24 - - H 2019	page 9 / 50

10-M=VIST-161-	Industr	ial Stat	istics 2							
m01	ECTS 10 Duration			า	1 semester	Method of grading numerical grade	Modul level	graduate		
	Course	S			V (4) + Ü (2) Module taught in: German and/or English					
	Methoo	d of ass	essment	b) ora c) ora Langu Asses	ll examination of o l examination in gr lage of assessmen	approx. 90 to 120 minutes, usually chosen) (ne candidate each (approx. 20 minutes) or roups (groups of 2, 15 minutes per candidate It: German or English the semester in which the course is offered a	e)	emester		
10-M=V-	Statist	ical Ana	lysis							
STA-161-m01	ECTS	10	Duratio	ı	1 semester	Method of grading numerical grade	Modul level	graduate		
	Course				+ Ü (2) lle taught in: Germ	an and/or English				
	Methoo	d of ass	essment	b) ora c) ora Langu Asses	ll examination of o l examination in g lage of assessmen	approx. 90 to 120 minutes, usually chosen) of ne candidate each (approx. 20 minutes) or roups (groups of 2, 15 minutes per candidate it: German or English the semester in which the course is offered a	e)	emester		
10-M=VVS-	Insurance Mathematics 2									
M-161-m01	ECTS	10	Duratio		1 semester	Method of grading numerical grade	Modul level	graduate		
	Courses				V (4) + Ü (2) Module taught in: German and/or English					
	Methoo	d of ass	essment	b) ora c) ora Langu Asses	a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus					
10-M=VZ-	Time S	eries Ar	alysis 2							
RA-161-m01	ECTS	10	Duratio		1 semester	Method of grading numerical grade	Modul level	graduate		
	Course	S			V (4) + Ü (2) Module taught in: German and/or English					
	Methoo	d of ass	essment	b) ora c) ora Langu Asses	Il examination of o l examination in gr lage of assessmen	amination (approx. 90 to 120 minutes, usually chosen) or ination of one candidate each (approx. 20 minutes) or ination in groups (groups of 2, 15 minutes per candidate) assessment: German or English offered: In the semester in which the course is offered and in the subsequent semester r bonus				

Master's with 1 major Computational Mathematics (2019)	JMU Würzburg • generated 19-Apr-2025 • exam. reg. data record 88 f24 - - H 2019	page 10 / 50

10-M=VD-	Dynam	ical Sys	stems							
SY-161-m01	ECTS 5 Duration			n	1 semester	Method of grading numerical grade	Modul level	graduate		
	Course	S			V (3) + Ü (1) Module taught in: German and/or English					
	Metho	d of ass	essment	b) ora c) ora Langu Asses	al examination of Il examination in g Jage of assessme	(approx. 60 to 90 minutes, usually chosen) or one candidate each (approx. 15 minutes) or groups (groups of 2, approx. 10 minutes per cand nt: German or English the semester in which the course is offered and		emester		
10-M=VMB-	Mathe	matical	Imaging							
V-161-m01	ECTS	5	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate		
	Course	S	-		+ Ü (1) ıle taught in: Gern	nan and/or English				
	Metho	d of ass	essment	b) ora c) ora Langu Asses	al examination of Il examination in g Jage of assessme	(approx. 60 to 90 minutes, usually chosen) or one candidate each (approx. 15 minutes) or groups (groups of 2, approx. 10 minutes per cand nt: German or English the semester in which the course is offered and		emester		
10-M=V-	Selected Topics in Control Theory									
TRT-161-m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate		
	Courses				V (4) + Ü (2) Module taught in: German and/or English					
	Metho	d of ass	essment	 a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus 						
10-M=V-	Non-lir	iear Ana	alysis							
NAN-161-m01	ECTS	5	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate		
	Course	S			V (3) + Ü (1) Module taught in: German and/or English					
	Method of assessment			b) ora c) ora Langu Asses	al examination of Il examination in g Jage of assessme	(approx. 60 to 90 minutes, usually chosen) or one candidate each (approx. 15 minutes) or groups (groups of 2, approx. 10 minutes per cand nt: German or English the semester in which the course is offered and		emester		

Master's with 1 major Computational Mathematics (2019)	JMU Würzburg • generated 19-Apr-2025 • exam. reg. data record 88 f24 - - H 2019	page 11 / 50

10-M=VV-	Networke	d Systems							
SY-161-m01	ECTS 5	Duratio	n 1 semester	Method of gradir	ng numerical grade	Modul level	graduate		
	Courses		V (3) + Ü (1) Module taught in	: German and/or English					
	Method o	f assessment	b) oral examination c) oral examination Language of asse	ation (approx. 60 to 90 mi on of one candidate each (on in groups (groups of 2, a ssment: German or Englisl ed: In the semester in whi uus	approx. 15 minutes) or approx. 10 minutes per c 1	candidate)	emester		
10-M=VK-	Complex	Geometry							
GE-161-m01	ECTS 10	Duratio	n 1 semester	Method of gradir	ng numerical grade	Modul level	graduate		
	Courses		V (4) + Ü (2) Module taught in	: German and/or English					
	Method o	f assessment	b) oral examination c) oral examination Language of asse	ation (approx. 90 to 120 m on of one candidate each (on in groups (groups of 2, 3 ssment: German or Englisl ed: In the semester in whit uus	approx. 20 minutes) or 15 minutes per candidate 1	e)	emester		
10-M=VPD-	Partial Di	fferential Equa	tions of Mathematical Physics						
P-161-m01	ECTS 10	Duratio		Method of gradir	ng numerical grade	Modul level	graduate		
	Courses		V (4) + Ü (2) Module taught in: German and/or English						
	Method o	f assessment	b) oral examination c) oral examination Language of asset Assessment offer	a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus					
10-M=V-	Pseudo R	iemannian an	d Riemannian Geor	netry					
PRG-161-m01	ECTS 10	Duratio	n 1 semester	Method of gradir	ng numerical grade	Modul level	graduate		
	Courses		V (4) + Ü (2) Module taught in	V (4) + Ü (2) Module taught in: German and/or English					
	Method o	f assessment	 b) oral examination c) oral examination Language of asset 	ation (approx. 90 to 120 m on of one candidate each (on in groups (groups of 2, ssment: German or Englis ed: In the semester in whi ous	approx. 20 minutes) or 15 minutes per candidate 1	e)	emester		

Master's with 1 major Computational Mathematics (2019)	JMU Würzburg • generated 19-Apr-2025 • exam. reg. data record 88 f24 - - H 2019	page 12 / 50

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

Master's with 1 major Computational Mathematics (2019)	JMU Würzburg • generated 19-Apr-2025 • exam. reg. data record 88 f24 - - H 2019	page 13 / 50

10-	Giovanni Prodi Lecture Modern Topics (Master)										
M=VGPMin-152-	ECTS	10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate		
m01	Cours	es			V (4) + Ü (2) Module taught in: English						
	Metho	od of ass	essment	b) ora c) ora Langu Asses	a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus						
10-M=EL-	Learn	ing by Te	eaching 1								
T1-192-m01	ECTS	5	Duratio	n	1 semester	Method of grading	(not) successfully completed	Modul level	graduate		
	Cours	es		Ü (2)							
	Metho	od of ass	essment		Assessment of tutoring activities by supervising lecturers or exercise supervisors (1 to 2 teaching units) Language of assessment: German						
	Additi	onal Info	ormation	Appli	Application and selection with the teaching coordinator for mathematics						
10-M=VGFT-192-	Geometric Complex Analysis										
m01	ECTS 10 Duratio		n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Cours	es		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 or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus 				emester			
10-M=V-	Crypt	ography,	Coding T	heory							
KRY-192-m01	ECTS	10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Courses			V (4) + Ü (2) Module taught in: German and/or English							
	Method of assessment			b) ora c) ora Langu Asses	l examination of or l examination in gro lage of assessment	ne candidate each (ap oups (groups of 2, 15 r : German or English	utes, usually chosen) or prox. 20 minutes) or ninutes per candidate) the course is offered and in the	subsequent se	emester		

10-M=V-	Compu	ter Alg	ebra							
CAL-192-m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate		
	Course	S			V (4) + Ü (2) Module taught in: German and/or English					
	Methoo	d of ass	sessment	b) ora c) ora Langi Asses	al examination of Il examination in g Jage of assessme	(approx. 90 to 120 minutes, usually chosen) one candidate each (approx. 20 minutes) or groups (groups of 2, 15 minutes per candidate nt: German or English the semester in which the course is offered a	2)	emester		
10-M=VAZ-	Algorit	hmic N	umber The	eory						
T-192-m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate		
	Course	S			+ Ü (2) ıle taught in: Gern	nan and/or English				
	Methoo	d of ass	sessment	b) ora c) ora Langu Asses	a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus					
10-M=VA-	Algebraic Geometry									
GE-192-m01	ECTS	10	Duratio		1 semester	Method of grading numerical grade	Modul level	graduate		
	Course	Courses			V (4) + Ü (2) Module taught in: German and/or English					
	Method of assessment			a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus						
10-M=E-	Interns	ship Ma	thematics	5						
PRK-161-m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade	Modul level	graduate		
	Course	S		P (o)						
	Methoo	d of ass	sessment		a) placement report (15 to 30 pages) or b) talk (30 to 60 minutes)					
		rerequi	icitos.	In adv	In advance, please consult with a lecturer who agrees to be your supervisor.					

Subfield Research	in Groups	and S	eminars	(10 ECT	S credits)							
10-M=GM-	Research	h in Gr	oups - Ma	athema	atics in the Science	25						
SC-161-m01	ECTS 1	10	Duratio	า	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Courses				V (2) + S (2) Module taught in: German and/or English							
	Method	of asse	essment	Langu	talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester							
10-M=GN-	Research	h in Gr	oups - Nu	merica	merical Mathematics and Applied Analysis							
MA-161-m01	ECTS 1	10	Duratio	ı	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Courses			V (2) - Modu	+ S (2) le taught in: Germ	an and/or English						
	Method	of asse	essment	Langu	talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester							
10-M=GROC-161-	Research	Research in Groups - Robotics, Optimization and Control Theory										
m01	ECTS 1	10	Duratio	า	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Courses			V (2) - Modu	+ S (2) le taught in: Germ	an and/or English						
	Method of assessment			talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester								
10-M=SGP-	Giovanni	i Prodi	Seminar	(Master)								
Cin-152-m01	ECTS 4	5	Duratio	1	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Courses			S (2) Module taught in: English								
	Method of assessment			talk (60 to 120 minutes) Language of assessment: English Assessment offered: In the semester in which the course is offered and in the subsequent semester								
10-M=SID-	Interdisc	ciplina	ry Semin	ar								
C-161-m01	ECTS 4	5	Duratio	ı	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Courses			S (2) Module taught in: German and/or English								
	Method	Method of assessment			talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester							

Master's with 1 major Computational Mathematics (2019)	JMU Würzburg • generated 19-Apr-2025 • exam. reg. data record 88 f24 - - H 2019	page 16 / 50

10-M=SM-	Semina	r Math	ematics i	n the S	n the Sciences							
SC-161-m01	ECTS	5	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Courses	5			S (2) Module taught in: German and/or English							
	Method	of ass	essment		talk (60 to 120 minutes)							
				Asses	Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester							
10-M=SN-					thematics and Applied Analysis							
MA-161-m01	ECTS 5 Duratio				1 semester	Method of grading	numerical grade	Modul level	graduate			
	Courses	5			S (2) Module taught in: German and/or English							
	Method	of ass	essment	Langi	talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester							
10-M=SOP-	Semina	r in Op	timizatio	'n								
T-161-m01	ECTS	5	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Courses Method of assessment				lle taught in: Germ							
	Method	of ass	essment	Langi	talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: In the semester in which the course is offered and in the subsequent semester							
10-M=SA-	Seminar Applied Mathematics											
MA-192-m01	ECTS	5	Duratio		1 semester	Method of grading	numerical grade	Modul level	graduate			
	Courses	5		S (2) Module taught in: German and/or English								
	Method	of ass	essment	talk (60 to 120 minutes) Language of assessment: German or English Assessment offered: in the semester in which the course is offered and in the subsequent semester								
Subfield Application	on Subjec	t (10 EC	CTS credi	ts)				·				
Application Subject	t Biology	and M	edicine									
07-MS2BI-152-m01	Bioinfo	rmatics	;									
	ECTS	10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Courses	5		V (2) + S (1) Module taught in: German and/or English								
	Method	of ass	essment	c) ora d) ora	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							

Master's with 1 major Computational Mathematics (2019)	JMU Würzburg • generated 19-Apr-2025 • exam. reg. data record 88 f24 - - H 2019	page 17 / 50

07-MS2BIF1-152-	Bioinfo	rmatics	F1									
m01	ECTS	10	Duration	n	1 semester	Method of grading numerical grade	Modul level	graduate				
	Course	S			P (14) + S (1) Module taught in: German and/or English							
	Method	d of asse	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-MS2BIF2-152-	Bioinfo	rmatics	F2									
m01	ECTS 15 Duratio			n	1 semester	Method of grading (not) successfully completed	Modul level	graduate				
	Courses				P (29) + S (1) Module taught in: German and/or English							
				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	Bioinformatics B											
	ECTS 5 Duratio				1 semester	Method of grading (not) successfully completed	Modul level	graduate				
	Courses			V (2) 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-MS3S-152-m01	System	is Biolog	gy									
	ECTS	10	Duration		1 semester	Method of grading numerical grade	Modul level	graduate				
	Course	S			V (2) + S (1) Module taught in: German and/or English							
	Method	l of asse	essment	c) ora d) ora	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							

Master's with 1 major Computational Mathematics (2019)	JMU Würzburg • generated 19-Apr-2025 • exam. reg. data record 88 f24 - - H 2019	page 18 / 50

07-MS3SYF1-152-	System	ns Biolo	ogy F1								
m01	ECTS	10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	S			P (14) + S (1) Module taught in: German and/or English						
	Method	d of ass	essment	a) wri 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-MS3SYF2-152-	System	ns Biolo	ogy F2								
m01	ECTS	15	Duratio	n	1 semester	Method of grading	(not) successfully completed	Modul level	graduate		
	Course	S			P (29) + S (1) Module taught in: German and/or English						
	Methoo	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-MS-B-152-m01	Systems Biology B										
	ECTS	5	Duratio	n	1 semester	Method of grading	(not) successfully completed	Modul level	graduate		
	Course	S		V (2) Modu	V (2) Module taught in: German and/or English						
	Methoo	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 							
Application Subject	t Chemi	е									
08-PCM1a-161-	Laser S	Spectro	scopy								
m01	ECTS	5	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	S			S (2) + Ü (1) Module taught in: German or English						
	Methoo	d of ass	essment	b) ora	a) written examination (approx. 90 minutes) or b) oral examination of one candidate each (approx. 20 minutes) Language of assessment: German and/or English						

Master's with 1 major Computational Mathematics (2019)	JMU Würzburg • generated 19-Apr-2025 • exam. reg. data record 88 f24 - - H 2019	page 19 / 50

m01 ECTS 5 Duration 1 semester Method of grading (not) successfully completed Modul level graduate Courses P (4) Module taught in: German or English P (4) Module taught in: German or English 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 Additional Information Additional information on module duration: block taught lab course with approx. 20 working days. 08-PCM2-161-m1 Statisticat Bectom Dynamics I semester ECTS 5 Duration I semester Method of grading numerical grade Modul level graduate Courses S (2) + Ü (1) Module taught in: German or English Modul level graduate 08-PCM3-161-m0 Anset Sersement a) written examination (approx. 90 minutes) or o talk (approx. 30 minutes) Language of assessment: German and/or English Modul level graduate 08-PCM3-161-m0 ECTS 5 Duration 1 semester Method of grading numerical grade Modul level graduate 08-PCM3-161-m0 ECTS 5 Duration 1 semester Method of grading <td< th=""><th>08-PCM1b-161-</th><th>Advan</th><th colspan="12">dvanced Physical Chemistry (Lab)</th></td<>	08-PCM1b-161-	Advan	dvanced Physical Chemistry (Lab)											
Module taught in: Germa or English Method of assessment Moticity Moticity Moticity mail assessment of practical performance (2 to 4 random examinations) Language of assessment of practical performance (2 to 4 random examinations) Language of assessment of practical performance (2 to 4 random examinations) Language of assessment of practical performance (2 to 4 random examinations) Language of assessment of practical performance (2 to 4 random examinations) Language of assessment of practical performance (2 to 4 random examinations) Language of assessment of practical performance (2 to 4 random examinations) Language of assessment of practical performance (2 to 4 random examinations) Language of assessment of practical performance (2 to 4 random examinations) Language osePCM2-161:m0 Statistic Herbitics Herbitics Addition motion module duration: block taught lab course with approx. 20 working aps. graduate OSPCM2-161:m0 Statistic Is emester Method of grading numerical grade Modul level graduate osePCM3-161:m1 Statistic Herbitics Signalis Language of assesement: German and/or English	m01	ECTS	5	Duratio	n	1 semester	Method of grading	(not) successfully completed	Modul level	graduate				
Method of assessment 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 Additional Information Additional information on module duration: block taught lab course with approx. 20 working days. 08-PCM2-161-mon Statistical Wechanics and company I semester ECTS 5 Duration 1 semester Method of assessment S (2) + Ü (1) Module taught in: German or English Modul level graduate 08-PCM3-161-mon Method of assessment a) written examination (approx. 9 on minutes) or b) oral examination on candidate each (approx. 20 minutes) or c) talk (approx. 30 minutes) Method of grading numerical grade Modul level graduate 08-PCM3-161-mon FETS 5 Duration a) written examination (approx. 9 or minutes) or b) oral examination of one candidate each (approx. 20 minutes) or c) talk (approx. 30 minutes) a) written examination or English 08-PCM3-161-mon Method of assessment a) written examination of company		Course	!S											
and assessment of practical performance (2 to 4 random examinations) Language of assessment: German and/or English Additional Information Additional information on module duration: block taught lab course with approx. 20 working days. 08-PCM2-161-monition Statistical Mechanics and Examples of assessment: German on module duration: block taught lab course with approx. 20 working days. 08-PCM2-161-monition Statistical Mechanics and Examples of assessment: German or English ECTS 5 Duration 1 semester Module taught in: German or English Modul level graduate O8-PCM3-161-monition 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 a) written examination of one candidate each (approx. 20 minutes) or c) talk (approx. 30 minutes) Language of assessment: German and/or English 08-PCM3-161-monition Nanoscale Materials 1 semester 62-PCM3-164-monition S (2) + Ü (1) 08-PCM3-164-monition S (2) + Ü (1)		-		-										
Information or assessment: German and/or English Additival Information or adduction: block taught lab course with approx. 20 working days. o8-PCM2-161-m0 Statistic Helevenic Substration GCN2-2-161-m0 Statistic Helevenic Substration GCN2-2-161-m0 Statistic Helevenic Substration GCN2-2-161-m0 Statistic GCN2-2-161-m0 Statistic GCN2-2-161-m0 Statistic GCN2-2-161-m0 Statistic GCN2-2-161-m0 Statistic Isemester S(2) + Ü (1) Noduletaught in: German or English Moduletaught in: German or English Method stassessment: German and/or English b) oral examination of one candidate each (approx. 20 minutes) or c) talk (approx. 30 minutes) language of assessment: German and/or English o8-PCM3-161-m0 Samester GCN2-2-S I seme		Metho	d of asse	essment										
Additional Information Additional information on module duration: block taught lab course with approx. 20 working days. 08-PCM2-161-mon Statistical Mechanicas and constructions I semester Method of grading numerical grade Modul level graduate ECTS 5 Duration I semester Method of grading numerical grade Modul level graduate Courses S (2) + Ü (1) Module taught in: German or English Nodule taught in: German or English Nodul evel graduate 08-PCM3-161-mon Method of assessment: German and/or English a) written examination of one candidate each (approx. 20 minutes) or c) talk (approx. 30 minutes) Language of assessment: German and/or English b) oral examination of one candidate each (approx. 20 minutes) or c) talk (approx. 30 minutes) Language of assessment: German and/or English 08-PCM3-161-mon Matoset etalse I semester Method of grading numerical grade Modul level graduate 08-PCM3-161-mon 5 Duration I semester Method of grading numerical grade Modul level graduate														
ECTS 5 Duration 1 semester Method of grading numerical grade Modul level graduate Courses S (2) + Ü (1) Module taught in: German or English S (2) + Ü (1) Module taught in: German or English S (2) + Ü (1) S (2) + Ü (1) <td></td> <td>Additio</td> <td>onal Info</td> <td>rmation</td> <td>-</td> <td colspan="7"></td>		Additio	onal Info	rmation	-									
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 08-PCM3-161-m01 Nanoscale Materials ECTS 5 Duration 1 semester Method of grading numerical grade Modul level graduate	08-PCM2-161-m01	Statist	ical Med	hanics a	nd Rea									
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-PCM3-161-m01 Nanoszte Materials ECTS 5 Duration 1 semester Method of grading numerical grade Modul level graduate Courses S (2) + Ü (1)		ECTS	5	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate				
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-PCM3-161-m01 Nanoscale Materials ECTS 5 Duration 1 semester Method of grading numerical grade Modul level graduate Courses S (2) + Ü (1)		Course	!S	J	S (2) -	- + Ü (1)								
08-PCM3-161-mo1 Nanoscale Materials ECTS 5 Duration 1 semester Method of grading numerical grade Modul level graduate Courses S (2) + Ü (1) 1 semester S (2) + Ü (1)					Modu									
08-PCM3-161-mo1 Nanoscie Materials ECTS 5 Duration 1 semester Method of grading numerical grade Modul level graduate Courses S (2) + Ü (1)		Metho	d of asse	essment										
O8-PCM3-161-mo1 Nanoscale Materials ECTS 5 Duration 1 semester Method of grading numerical grade Modul level graduate Courses S (2) + Ü (1)														
O8-PCM3-161-mo1 Nanoscale Materials ECTS 5 Duration 1 semester Courses S (2) + Ü (1) S (2) + Ü (1)								ish						
ECTS 5 Duration 1 semester Method of grading numerical grade Modul level graduate Courses S (2) + Ü (1)	08-PCM3-161-m01													
Courses S (2) + Ü (1)					1	1 semester	Method of grading	numerical grade	Modul level	graduate				
					S (2) -					5				
			-		Module taught in: German or English									
Method of assessment a) written examination (approx. 90 minutes) or		Metho	d of asse	essment										
					b) oral examination of one candidate each (approx. 20 minutes) or									
					c) talk (approx. 30 minutes)									
creditable for bonus					Language of assessment: German and/or English creditable for bonus									
08-PCM4-161-mo1 Ultrafast spectroscopy and quantum-control	08-PCM4-161-m01	Ultrafa	st spect	roscopy										
ECTS 5 Duration 1 semester Method of grading numerical grade Modul level graduate			<u> </u>				Method of grading	numerical grade	Modul level	graduate				
Courses S (2) + Ü (1)		Course			S (2) -	ι + Ü (1)		-						
Module taught in: German or English														
Method of assessment a) written examination (approx. 90 minutes) or		Metho	d of asse	essment										
b) oral examination of one candidate each (approx. 20 minutes) or								prox. 20 minutes) or						
c) talk (approx. 30 minutes) Language of assessment: German and/or English								ich						
other prerequisites Prior completion of modules o8-PCM1a and o8-PCM1b recommended.		other r	rerequie	ites	-	-	-							

08-PCM5-161-m01	Physic	al Chem	istry of S	upram	olecular Assemblies	5						
	ECTS	5	Duratior	า	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	S			S (2) + Ü (1) Module taught in: German or English							
	Metho	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								
08-PCM6-161-m01	Physic	al Chem	istry (Adv	/anced	Lab)							
	ECTS	5	Duratior	ı	1 semester	Method of grading	(not) successfully completed	Modul level	graduate			
	Course	S		P (4) Modu	P (4) Aodule taught in: German or English							
	Metho	d of asse	essment		presentation (approx. 20 minutes) Language of assessment: German and/or English							
	Additio	Additional Information Additional information on module duration: block taught lab course with approx. 20 working days.										
08-TCM2-161-m01	Basics	and App	lications	of Qua	antum Chemistry							
	ECTS	5	Duratior		1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course			. ,	S (2) + Ü (2)							
	Method of assessmenta) 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-TCM3-161-m01		ical Met	hods and		amming							
	ECTS	5	Duratior		1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course			S (2) +				_				
	Metho	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) 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 Dyna													
	ECTS 5	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate						
	Courses		S (2)	+ Ü (2)										
	Method 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) 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-TCM1-161-m01	Selected Topic	s in Theo	_	-										
	ECTS 5 Duration 1 semester Method of grading numerical grade Modul level graduate													
	Courses		•											
	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		eoretical Chemistry - Project course quantum chemistry												
	ECTS 5	Duratio	<i>.</i> ,	1 semester	Method of grading	(not) successfully completed	Modul level	graduate						
	Courses		P (5)											
			Langu		: German and/or Eng									
						lock taught lab course with app	rox. 20 working	days.						
08-TCAP2-161-m01		-		t course quantum d			<u>.</u>							
	ECTS 5	Duratio	4	1 semester	Method of grading	(not) successfully completed	Modul level	graduate						
	Courses		P (5)											
	Method of asse	essment		ntation (approx. 30 lage of assessment	minutes) : German and/or Eng	lish								
	Additional Info	rmation	Addit	ional information or	n module duration: b	lock taught lab course with app	rox. 20 working	g days.						
Application Subjec	t Computer Scie	ence and a	Aerosp	ace Computer Scier	nce									
10-I=SEM3-161-	Seminar 1 - Cu	rrent Top	ics in C	Computer Science										
m01	ECTS 5	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate						
	Courses		S (2)	•	•	-	•							
	Method of asse	essment	puter	science	es) and presentation : German and/or Eng		uent discussion	on a topic from the field of cor	m-					
	Additional Info	rmation		es available for stu CI´, GE.	dents of the Master's	programme Informatik (Compu	iter Science, 120	o ECTS credits): AT, SE, IT, IS, E	S,					
Master's with 1 major Co	nputational Mathemat	tics (2019)				JMU Würzburg • generated 19-Apr-20	025 • exam. reg. data r	ecord 88 f24 - - H 2019 page 22 / 5	50					

10-I=APR-161-m01	Advanc	ed Prog	ramming										
	ECTS	5	Duratior	ו	1 semester	Method of grading	numerical grade	Modul level	graduate				
	Course	S		V (2) +	$V(2) + \ddot{U}(2)$								
	Method	d of asse	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 candi- date). Language of assessment: German and/or English creditable for bonus									
					ocuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): iE,IS,LR, HCI, ES,GE								
10-l=AA-152-m01	Advanc	ed Auto	mation										
	ECTS 8 Duration			ו	1 semester	Method of grading	numerical grade	Modul level	graduate				
	Course	S		V (4) +	+ Ü (2)			·					
	Method of assessment			written examination (approx. 60 to 120 minutes) creditable for bonus									
				Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): IT,IS,ES,LR,GE									
	Referre				§ 22 Nr. 3 b)								
10-I=AGIS-161-m01	Algorit	hms for	Geograp	hic Information Systems									
	ECTS	5	Duratior	ו	1 semester	Method of grading	numerical grade	Modul level	graduate				
	Course	S		V (2) +	+ Ü (2)								
	Method	d 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 cand date). Language of assessment: German and/or English creditable for bonus									
	Additio	nal Info		Focus AT,IS,		dents of the Master's	programme Informatik (Com	puter Science, 12	o ECTS credits):				

10-I=AG-161-m01	Computational Geometry											
ŀ	ECTS 5	Duration	1 semester	Method of grading numerical grade	Modul level	graduate						
	Courses	V (2) + Ü (2)		:							
	Method of ass	If an of o 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 candi- date). Language of assessment: German and/or English creditable for bonus									
	Additional Inf	AT,H	uses available for s ICI,GE	students of the Master's programme Informa	tik (Computer Science, 12	o ECTS credits):						
10-I=APA-161-m01		n Algorithms										
	ECTS 5	Duration	1 semester	Method of grading numerical grade	Modul level	graduate						
	Courses	V (2) + Ü (2)									
		of o date Lang cred	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									
	Additional Inf		Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT,IT,GE									
	Referred to in		II Nr. 3 b)									
10-I=AUT-161-m01	Automata Theory											
10-I=AUT-161-m01	Automata The	9										
10-I=AUT-161-m01	Automata The ECTS 5	ory Duration	1 semester	Method of grading numerical grade	Modul level	graduate						
10-I=AUT-161-m01		ory Duration		Method of grading numerical grade	Modul level	graduate						
10-I=AUT-161-m01	ECTS 5 Courses	Buration V (2) Sessment write If an of o date Lang	1 semester) + Ü (2) ten examination (a nounced by the le ne candidate each e).	Method of grading numerical grade pprox. 60 to 120 minutes). cturer at the beginning of the course, the wri (approx. 20 minutes) or an oral examination ent: German and/or English	tten examination may be	replaced by an oral examination						

10-I=AVS-161-m01	Avionics Syste	ems								
	ECTS 5	Duratio	n	1 semester	Method of grading n	umerical grade	Modul level	graduate		
	Courses		V (2) +	⊦Ü (2)						
	Method of ass	essment	lf 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						
	Additional Info		ES,LR		dents of the Master's pr	ogramme Informatik (Comp	uter Science, 12	o ECTS credits):		
10-HCI=M-	Multimodal Us	ser Interfa	ices							
MUI-161-m01	ECTS 5	Duratio	n	1 semester	Method of grading n	umerical grade	Modul level	graduate		
	Courses		V (2) +	⊦Ü (2)						
	Method of ass		Langu	presentation of project results (approx. 40 minutes) Language of assessment: German and/or English creditable for bonus						
	Additional Info	ormation	Focus	Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): HCI,GE.						
	Referred to in I	LPO I	§ 22	l Nr. 3 b)						
10-I=BER-161-m01	Computability	Theory								
	ECTS 5	Duratio		1 semester	Method of grading n	umerical grade	Modul level	graduate		
	Courses		V (2) -							
	Method 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 candi- date). Language of assessment: German and/or English creditable for bonus							
	Additional Info	ormation		es available for stud ,IT,IS,GE	dents of the Master's pr	ogramme Informatik (Comp	uter Science, 12	o ECTS credits):		
07-BI-161-m01	Bioinformatics	5								
	ECTS 5	Duratio		1 semester	Method of grading n	umerical grade	Modul level	undergraduate		
	Courses		V (2) +	+ Ü (2)						
	Method of ass	essment	lf 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-						

Master's with 1 major Computational Mathematics (2019)	JMU Würzburg • generated 19-Apr-2025 • exam. reg. data record 88 f24 - - H 2019	page 25 / 50

10-I=CB-161-m01	Compiler Cons	truction								
	ECTS 5	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Courses		V (2) ·	+ Ü (2)						
	Method of ass	essment	lf 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						
	Additional Info	ormation		ocuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): SE,IT,IS,GE						
10-I=DDB-161-m01	Deductive Data	abases								
	ECTS 8	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Courses		V (4) -) + Ü (2)						
	Method of ass	essment	lf 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						
	Additional Info	ormation	Focus AT,SE		dents of the Master's	programme Informatik (Computer Science, 120	o ECTS credits):		
10-l=EL-161-m01	E-Learning									
	ECTS 5 Duratio		n	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Courses		V (2) ·	+ Ü (2)						
	Method of assessment		lf 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						
	Additional Info	ormation		Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): SE,IT,IS,HCI,GE						
10-MCS=H-	Introduction in	nto Humai	n-Comj	outer Interaction						
Cl-161-m01	ECTS 5	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Courses		V (2) -	+ Ü (2)						
	Method of ass	essment	Langu	presentation of project results (approx. 30 minutes) Language of assessment: German and/or English creditable for bonus						

	Master's with 1 major Computational Mathematics (2019)	JMU Würzburg • generated 19-Apr-2025 • exam. reg. data record 88 f24 - - H 2019	page 26 / 50
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10-I=ES-161-m01	Embed	ded Sys	stems		-						
	ECTS	8	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	!S		V (4) ·	+ Ü (2)						
	Methoo	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 candi- date). Language of assessment: German and/or English creditable for bonus						
		1		AT,SE	E,ES,LR,GE	udents of the Master's	programme Informatik	(Computer Science, 120	c ECTS credits):		
10-I=PA-161-m01		is and D	Design of	Progra	ıms						
	ECTS 5 Duratio			n	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	!S		V (2) ·	2) + Ü (2)						
	Method of assessment			If ann of one date) Langu credit	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						
	Additio	onal Info	ormation	Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): SE,IS,ES,GE							
10-I=IR-161-m01	Information Retrieval										
	ECTS	5	Duration		1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	S		V (2)	V (2) + Ü (2)						
	Methoo	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 candi- date). Language of assessment: German and/or English creditable for bonus							
	Additio	onal Info	ormation		ses available for st HCI,GE	udents of the Master's	programme Informatik	(Computer Science, 120	c ECTS credits):		

10-HCI=3DUI-161-	3D User Interfa	ices								
m01	ECTS 5	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Courses	_	V (2) +	- Ü (2)						
	Method of asse	essment	Langu	presentation of project results (approx. 30 minutes) anguage of assessment: German and/or English creditable for bonus						
	Additional Info	rmation	Focus	es available for stu	dents of the Master's	programme Informatik (Comp	uter Science, 12	o ECTS credits): HCI,GE.		
	Referred to in L	.PO I	§ 22	22 II Nr. 3 b)						
10-I=KT2-161-m01	Computational	Complex								
	ECTS 5	Duratio		1 semester	Method of grading	numerical grade	Modul level	graduate		
	Courses		V (2) +	- Ü (2)						
	Method of asse		If anno of one date). Langu credita	vritten examination (approx. 60 to 120 minutes). Fannounced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination f one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candi- ate). anguage of assessment: German and/or English reditable for bonus						
	Additional Info		Focus	ocuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT, SE, IT, ES						
10-I=Kl1-161-m01	Artificial Intelli			A competer Method of grading humorical grade						
	ECTS 5 Duratio			1 semester	Method of grading	numerical grade	Modul level	graduate		
	Courses		V (2) +							
	Method of asse	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 candi- date). Language of assessment: German and/or English creditable for bonus							
	Additional Info	rmation	Focus AT,SE,		dents of the Master's	programme Informatik (Comp	uter Science, 120	o ECTS credits):		
10-l=Kl2-161-m01	Artificial Intelligence 2									
	ECTS 5	Duratio		1 semester	Method of grading	numerical grade	Modul level	graduate		
	Courses		V (2) +							
	Method of asse	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 candi- date). Language of assessment: German and/or English creditable for bonus							
	Additional Info	rmation		es available for stu IS,HCI,GE	dents of the Master's	programme Informatik (Comp	uter Science, 120	o ECTS credits):		
Master's with 1 major Co	nputational Mathemat	ics (2019)				JMU Würzburg • generated 19-Apr-2	025 • exam. reg. data r	ecord 88 f24 - - H 2019 page 28 / 50		

10-I=LVS-161-m01	Perforr	Performance Evaluation of Distributed Systems											
	ECTS	8	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate				
	Course	S		V (4) ·	+ Ü (2)			·					
	Method of assessment			lf 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 candi- date). Language of assessment: German and/or English creditable for bonus								
	Additio	nal Info	ormation	Focus AT,IT,		dents of the Master's	programme Informatik	(Computer Science, 120	o ECTS credits):				
10-I=ML-161-m01	Mathe	matical	Logic										
	ECTS 5 Duratio				1 semester	Method of grading	numerical grade	Modul level	graduate				
	Courses			V (2) ·	(2) + Ü (2)								
	Method of assessment			of on date) Langu credit	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,ES									
10-I=MI-161-m01	Medica	al Inforn	natics										
	ECTS	5	Duratio		1 semester	Method of grading	numerical grade	Modul level	graduate				
	Course	S		V (2) + Ü (2)									
	Methoo	1 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 candi- date). Language of assessment: German and/or English creditable for bonus									
	Additic	onal Info	ormation		ses available for stu ,IS,HCI,GE	dents of the Master's	programme Informatik ((Computer Science, 120	o ECTS credits):				

10-I=PEB-161-m01	Performanc	Performance Engineering & Benchmarking of Computer Systems										
	ECTS 5	Duratio	n 1 semester	Method of grading numerical grade	Modul level	graduate						
	Courses		V (2) + Ü (2)	· · ·		·						
	Method of a	assessment	If announced by the le of one candidate each date).	approx. 60 to 120 minutes). cturer at the beginning of the course, the write (approx. 20 minutes) or an oral examination ent: German and/or English	ten examination may be in groups of 2 candidate	replaced by an oral examination s (approx. 15 minutes per candi-						
	Additional I	nformation	Focuses available for s SE,IT,ES,HCI,GE	students of the Master's programme Informati	k (Computer Science, 12	o ECTS credits):						
10-I=RAM-161-m01	Computer A	rithmetic										
	ECTS 5	Duratio	n 1 semester	Method of grading numerical grade	Modul level	graduate						
	Courses		V (2) + Ü (2)	· ·								
	Method of a	assessment	If announced by the le of one candidate each date).	approx. 60 to 120 minutes). cturer at the beginning of the course, the write (approx. 20 minutes) or an oral examination ent: German and/or English								
	Additional I	nformation	Focuses available for s AT,ES	students of the Master's programme Informati	k (Computer Science, 12	o ECTS credits):						
10-l=R01-152-m01												
	ECTS 8	Duratio	n 1 semester	Method of grading numerical grade	Modul level	graduate						
	Courses		V (4) + Ü (2)									
	Method of a	assessment	written examination (a creditable for bonus	pprox. 60 to 90 minutes)								
	Additional I	nformation	Focuses available for s IS,ES,LR,HCI	students of the Master's programme Informati	k (Computer Science, 12	o ECTS credits):						
	Referred to	in LPO I	§ 22 II Nr. 3 b)	§ 22 II Nr. 3 b)								
10-I=R02-152-m01	Robotics 2											
	ECTS 8	Duratio	n 1 semester	Method of grading numerical grade	Modul level	graduate						
	Courses		V (4) + Ü (2)									
	Method of a	assessment		pprox. 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									
	Additional I	nformation		students of the Master's programme Informati	k (Computer Science, 12	o ECTS credits): IT, ES, LR						

Master's with 1 major Computational Mathematics (2019)	JMU Würzburg • generated 19-Apr-2025 • exam. reg. data record 88 f24 - - H 2019	page 30 / 50

10-l=ST-161-m01	Discrete Event	Simulation	on							
	ECTS 8	Duratio	n 1	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Courses		V (4) +							
	Method of ass	essment	If annou of one o date). Langua	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						
	Additional Info	ormation	Focuses IT,IS,ES		dents of the Master's	programme Informatik (Com	puter Science, 120	o ECTS credits):		
10-HCI=RIS-161-	Real-Time Inte	ractive Sy	ystems							
m01	ECTS 5	Duratio	n 1	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Courses		V (2) + I) + Ü (2)						
	Method of ass		If annou of one o date). Langua	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 candi- late). .anguage of assessment: German and/or English creditable for bonus						
10-I=SAR-161-m01	Software Arch	itecture								
	ECTS 5	Duration		1 semester	Method of grading	numerical grade	Modul level	graduate		
	Courses		V (2) + I							
	Method 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 candi- date). Language of assessment: German and/or English creditable for bonus							
	Additional Info	ormation		Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): SE,IT,ES						
	Referred to in I	LPO I	§ 22	Nr. 3 b)						
10-HCI=M-	Machine Learr	ning (for U	lser Inte	rfaces)						
LUI-161-m01	ECTS 5	Duratio	n 1	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Courses		V (2) +	Ü (2)						
	Method of ass		Langua credital	presentation of project results (approx. 40 minutes) Language of assessment: German and/or English creditable for bonus						
	Additional Info				dents of the Master's	programme Informatik (Com	puter Science, 12	o ECTS credits): HCI,GE.		
	Referred to in I	LPO I	§ 22	Nr. 3 b)						
Master's with 1 major Co	moutational Mathema	tice (2010)				IMII Würzburg	r-2025 • exam reg data r	ecord 88/f2/		

10-l=VG-161-m01	Visuali	zation o	of Graphs								
ſ	ECTS	5	Duratio	า	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	S		V (2) ·	(2) + Ü (2)						
	Method	d of asse	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 candi- date). Language of assessment: German and/or English creditable for bonus						
				of one date). Langu							
	Additional Information			AT,IT,	HCI,GE	tudents of the Master's	programme Informatik	(Computer Science, 120	o ECTS credits):		
		ed to in L	-	-	l Nr. 3 b)						
10-I=AKA-161-m01	Selecte	ed Topic	s in Algo	rithms							
	ECTS	5	Duratio		1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	S		V (2) ·	+ Ü (2)						
				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							
	Additio	onal Info	rmation	Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT							
10-I=AKT-161-m01	Selecte	ed Topic	s in Theo	ry							
	ECTS	5	Duratio	า	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	S	_	V (2) ·	+ Ü (2)			·	_		
	Method	1 of asse	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 candi- date). Language of assessment: German and/or English creditable for bonus							
	Additio	nal Info	rmation	Focus AT	es available for s	tudents of the Master's	programme Informatik	(Computer Science, 120	o ECTS credits):		

10-l=SSS-172-m01	Security of Software Systems									
	ECTS 5 Duration		n	1 semester	Method of grading	numerical grade	Modul level	graduate		
				V (2) + Ü (2) Module taught in: English 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: English creditable for bonus						
				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-I=NLP-182-m01	Machin	e Learr	ning for Na	atural	Language Proces	sing				
	ECTS	5	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	graduate	
	Course	S		V (2)	+ Ü (2)			•		
			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							
						students of the Master's	programme Informati	k (Computer Science, 12	o ECTS credits): AT, IS, HCI.	
o-I=PM-182-m01	Professional Project Management									
	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 candi- date). Language of assessment: German and/or English creditable for bonus						
	other p	rerequi	sites	We re	ecommend compl	eting module 10-I=PRJA	K in parallel.			
	Additio	nal Info	ormation	Focus HCI, C		students of the Master's	programme Informati	k (Computer Science, 12	o ECTS credits): SE, IT, IS, ES, LF	

Master's with 1 major Computational Mathematics (2019)	JMU Würzburg • generated 19-Apr-2025 • exam. reg. data record 88 f24 - - H 2019	page 33 / 50

10-I=PRJAK-162-	Project - Cur	rent Topics	in Con	nputer Science				
m01	ECTS 5 Duration		n	1 semester	Method of grading	numerical grade	Modul level	graduate
	Courses		P (4)				·	
	Method of as	ssessment	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. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered					
	Additional In		Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT, SE, IT, IS, ES, LR, HCI, GE.					
10-I=STM-162-m01		t Mining						
	ECTS 5	Duratio		1 semester	Method of grading	numerical grade	Modul level	graduate
	Courses		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 candi- date). Language of assessment: German and/or English					
	Additional In	formation	Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT, IT, HCI.					
	Referred to ir	n LPO I	§ 22 Nr. 3 b)					
Application Subject	t Physik							
11-BSV-161-m01	Image and S	ignal Proce	ssing i	n Physics				
	ECTS 6 Duratio			1 semester	Method of grading	numerical grade	Modul level	graduate
	Courses		V (2) + Ü (2) Module taught in: German or English					
	Method of as	ssessment	 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester 					

11-QUI-161-m01	Quantum Information Technology									
	ECTS	6	Duration	1 1	1 semester	Method of grading	numerical grade	Modul level	graduate	
	Courses			V (3) + R (1) Module taught in: German or English						
	Method of assessmenta) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or 									
11-PMM-161-m01	Physic	s of Adv	vanced Ma							
	ECTS	6	Duration		1 semester	Method of grading	numerical grade	Modul level	graduate	
	Course	S		V (3) + Module	R (1) e taught in: Germa	an or English		I		
				 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester 						
11-SPI-161-m01	Spintro	1					· · · ·			
	ECTS 6 Duratio Courses			V (3) +	1 semester R (1) 2 taught in: Germa	Method of grading an or English	numerical grade	Modul level	graduate	
	Method of assessment			 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester 						

Master's with 1 major Computational Mathematics (2019)	JMU Würzburg • generated 19-Apr-2025 • exam. reg. data record 88 f24 - - H 2019	page 35 / 50

11-FK2-161-m01	Solid State Physics 2										
	ECTS 8 Duration		Duratior	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	25		V (4) + R (2) Module taught in: German or English							
	Metho	d of ass		 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester 							
11-FKS-161-m01	Solid S	State Sp	ectrocopy	1							
	ECTS	6	Duratior	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	25		V (3) + R (1) Module taught in: Ger	man or English						
	Method of assessment			 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes) If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester 							
11-MAG-161-m01	Magne	_				· · · ·					
	ECTS 6 Duratio Courses			n 1 semester Method of grading numerical grade Modul level graduate V (3) + R (1) Module taught in: German or English							
	Metho	d of ass		a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester							

Master's with 1 major Computational Mathematics (2019)	JMU Würzburg • generated 19-Apr-2025 • exam. reg. data record 88 f24 - - H 2019	page 36 / 50

11-HLPH-161-m01	Semiconductor Physics										
	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							
	Metho	d of ass		b) oral examination of c) oral examination in d) project report (appr e) presentation/talk (a If a written examination form of an oral examination the lecturer must infor Language of assessment	approx. 30 minutes). on was chosen as metho nation of one candidate o rm students about this b ent: German and/or Engl	prox. 30 minutes) or prox. 30 minutes per c d of assessment, this each or an oral examir y four weeks prior to t lish	may be changed and ass				
11-HNS-161-m01	Optica	l Propei	ties of Sei	miconductor Nanostru	ctures						
	ECTS	6	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	!S		V (3) + R (1) Module taught in: Ger	man or English						
				b) oral examination of c) oral examination in d) project report (appr e) presentation/talk (a If a written examination form of an oral examination the lecturer must infor Language of assessment	approx. 30 minutes). on was chosen as metho nation of one candidate o rm students about this b ent: German and/or Engl	prox. 30 minutes) or prox. 30 minutes per c d of assessment, this each or an oral examir y four weeks prior to t lish	may be changed and ass				
11-QTH-161-m01		um Tran									
	ECTS Course	6 s		V (3) + R (1) Module taught in: Ger	Method of grading	numerical grade	Modul level	graduate			
	Metho	d of ass		b) oral examination of c) oral examination in d) project report (appr e) presentation/talk (a If a written examination form of an oral examination the lecturer must infor Language of assessment	approx. 30 minutes). on was chosen as metho nation of one candidate of rm students about this b ent: German and/or Engl	prox. 30 minutes) or prox. 30 minutes per c d of assessment, this each or an oral examir y four weeks prior to t lish	may be changed and ass				

Master's with 1 major Computational Mathematics (2019)	JMU Würzburg • generated 19-Apr-2025 • exam. reg. data record 88 f24 - - H 2019	page 37 / 50

11-ASM-161-m01	Methods of Observational Astronomy									
	ECTS	6	Duratior	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	!S		V (3) + R (1) Module taught in: Ger	man or English					
	Metho	d of ass		b) oral examination of c) oral examination in d) project report (appr e) presentation/talk (a If a written examinatio form of an oral examin the lecturer must infor Language of assessme	approx. 30 minutes). In was chosen as methon nation of one candidate Im students about this b ent: German and/or Eng	oprox. 30 minutes) or prox. 30 minutes per ca d of assessment, this r each or an oral examin by four weeks prior to th lish	may be changed and ass			
11-TPE-161-m01	Experi	mental	Particle Ph	nysics						
	ECTS	6	Duratior	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	:S		V (3) + R (1) Module taught in: Ger	man or English					
	Method of assessment			 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester 						
11-ASP-161-m01			o Space Pl	<u> </u>		1				
	ECTS Course	6 es		V (3) + R (1) Module taught in: Gen	Method of grading	numerical grade	Modul level	graduate		
	Metho	d of ass	sessment	a) written examination b) oral examination of c) oral examination in d) project report (appr e) presentation/talk (a lf a written examination form of an oral examination the lecturer must infor Language of assessme	a (approx. 90 to 120 min one candidate each (ap groups (groups of 2, ap ox. 8 to 10 pages) or approx. 30 minutes). In was chosen as metho nation of one candidate m students about this b ent: German and/or Eng	pprox. 30 minutes) or prox. 30 minutes per ca d of assessment, this r each or an oral examin by four weeks prior to th lish	may be changed and ass			

Master's with 1 major Computational Mathematics (2019)	JMU Würzburg • generated 19-Apr-2025 • exam. reg. data record 88 f24 - - H 2019	page 38 / 50

11-MAS-161-m01	Multi-wavelength Astronomy										
	ECTS	6	Duration	1 semest	er	Method of grading	numerical grade	Modul level	graduate		
	Course	S		V (3) + R (1) Module taught i	V (3) + R (1) Module taught in: German or English						
	Methoo	d of ass		 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester 							
11-QM2-161-m01	Quantu	ım Mecl	hanics II								
	ECTS	8	Duration	1 semest	er	Method of grading	numerical grade	Modul level	undergraduate		
	Course	S		V (4) + R (2) Module taught i	n: Germa	n or English					
				 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester 							
11-RTT-161-m01		of Rela									
		6	Duration		er	Method of grading	numerical grade	Modul level	graduate		
	Course	S		V (3) + R (1) Module taught in: German or English							
	Methoo	d of ass		 b) oral examination or al examination or al examination of a project reported by presentation, and the lecturer must be lecturer must be an or al examples of a set of the lecturer must be an or al examples of a set of the lecturer must be an or al examples of a set of the lecturer must be an or al examples of a set of the lecturer must be an or al examples of a set of the lecturer must be an or al examples of a set of the lecturer must be an or al examples of a set of the lecturer must be an or al examples of the lectur	tion of on tion in gro t (approx. /talk (app nination v examinati st inform sessment	ion of one candidate e students about this by :: German and/or Engl	prox. 30 minutes) or prox. 30 minutes per o d of assessment, this each or an oral examin y four weeks prior to t ish	may be changed and ass			

Master's with 1 major Computational Mathematics (2019)	JMU Würzburg • generated 19-Apr-2025 • exam. reg. data record 88 f24 - - H 2019	page 39 / 50

11-QVTP-161-m01	Many Body Quantum Theory									
	ECTS	8	Duration	1	1 semester	Method of grading numerical grade	Modul level	graduate		
	Course	es		V (4) - Modu	- R (2) le taught in: Germa	n or English	,			
	Metho	d of ass	essment	 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester 						
11-PKS-161-m01	Physics of Complex Systems									
	ECTS 6 Duratio			1	1 semester	Method of grading numerical grade	Modul level	graduate		
	Courses			V (2) + R (2) Module taught in: German or English						
	Method of assessment			b) ora c) ora d) pro e) pre If a wr form c the le Langu	l examination of or l examination in gro ject report (approx sentation/talk (app itten examination v of an oral examinat cturer must inform age of assessment	approx. 90 to 120 minutes) or be candidate each (approx. 30 minutes) or bups (groups of 2, approx. 30 minutes per candidat a 8 to 10 pages) or brox. 30 minutes). was chosen as method of assessment, this may be ion of one candidate each or an oral examination in students about this by four weeks prior to the origin : German and/or English he semester in which the course is offered and in th	changed and ass groups. If the m nal examination	ethod of assessment is changed, date at the latest.		

11-QIC-161-m01	Quantum Information and Quantum Computing										
	ECTS	6	Duration	n	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Courses				+ R (1) Ile taught in: Germ	an or English					
	Modules successfully completed			a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester 11-QM2 or 11-TFK							
11-TFK-161-m01	Theoretical Solid State Physics										
	ECTS	ECTS 8 Duratio		n	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Courses			V (4) + R (2) Module taught in: German or English							
	Methoo	d of ass	essment	b) ora c) ora d) pro e) pre If a w form the le Langu	al examination of c al examination in g oject report (appro esentation/talk (ap ritten examination of an oral examina ecturer must inform uage of assessmer	x. 8 to 10 pages) or oprox. 30 minutes). was chosen as method ation of one candidate e n students about this b nt: German and/or Engl	prox. 30 minutes) or prox. 30 minutes per cand d of assessment, this ma each or an oral examinati y four weeks prior to the o	y be changed and ass ion in groups. If the m original examination o			

11-TFK2-161-m01	Theoretical Solid State Physics 2										
	ECTS 8 Duration		1	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	S		V (4) + Modul	R (2) e taught in: Germ	nan or English					
	Method of assessment			 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester 							
11-FTFK-161-m01	Field T	heory ir	n Solid Sta	te Phys	sics						
	ECTS	8	Duratior	1	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	S		V (4) + Modul	R (2) e taught in: Germ	nan or English					
	Method of assessment			 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester 					ethod of assessment is changed, date at the latest.		
11-TOPO-161-m01		gical O									
	ECTS Course	6 es		1 semesterMethod of gradingnumerical gradeModul levelgraduateV (3) + R (1)Module taught in: German or English							
	Metho	d of ass		b) oral c) oral d) proj e) pres lf a wri form o the lec Langua	examination of of examination in g ect report (appro sentation/talk (a) tten examination f an oral examina cturer must inforr age of assessme	ation of one candidate n students about this b nt: German and/or Eng	oprox. 30 minutes) or prox. 30 minutes per c d of assessment, this each or an oral examir by four weeks prior to t lish	may be changed and ass			

Master's with 1 major Computational Mathematics (2019)	JMU Würzburg • generated 19-Apr-2025 • exam. reg. data record 88 f24 - - H 2019	page 42 / 50

11-TFP-161-m01	Topology in Solid State Physics										
	ECTS 6 Duration			1 semester		Method of grading	numerical grade	Modul level	graduate		
	Course	!S		V (3) + R (1) Module taught in:	V (3) + R (1) Module taught in: German or English						
	Metho	d of ass		 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester 							
11-TSL-161-m01	Theory	of Sup	erconduct					· · · ·			
	ECTS	6	Duratior	1 semester		Method of grading	numerical grade	Modul level	graduate		
	Course	!S		V (3) + R (1) Module taught in:	Germa	an or English					
	Method of assessment			 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester 					nethod of assessment is changed, date at the latest.		
11-CMS-161-m01				s Science (DFT)							
	ECTS	8	Duratior			Method of grading	numerical grade	Modul level	graduate		
	Course	:S		V (4) + R (2) Module taught in: German or English							
	Metho	d of ass		b) oral examination c) oral examination d) project report (e) presentation/ta If a written examination form of an oral examination the lecturer must Language of asset	on of or on in gr approx alk (app nation aminat inform ssment	was chosen as methor ion of one candidate of students about this b t: German and/or Engl	prox. 30 minutes) or prox. 30 minutes per o d of assessment, this each or an oral exami y four weeks prior to t ish	may be changed and as			

Master's with 1 major Computational Mathematics (2019)	JMU Würzburg • generated 19-Apr-2025 • exam. reg. data record 88 f24 - - H 2019	page 43 / 50

11-KFT-161-m01	Conformal Field Theory									
	ECTS	6	Duratior	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	es		V (3) + R (1) Module taught in: Germ	an or English					
	Metho	d of ass		 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester 						
11-KFT2-161-m01	Confor	mal Fie	ld Theory :	2						
	ECTS	6	Duratior	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	es		V (3) + R (1) Module taught in: Germ	an or English					
	Metho			 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is change the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester 						
11-MSF-161-m01		-	nd Spin Flu	ids						
	ECTS	6	Duratior		Method of grading	numerical grade	Modul level	graduate		
	Course	25		V (3) + R (1) Module taught in: Germ	an or English					
	Metho	d of ass		 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester 						

Master's with 1 major Computational Mathematics (2019)	JMU Würzburg • generated 19-Apr-2025 • exam. reg. data record 88 f24 - - H 2019	page 44 / 50

11-TQP-161-m01	Topological Quantum Physics									
	ECTS	6	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	S		V (3) + R (1) Module taught in: Gern	nan or English					
	Method of assessment			 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester 						
11-CRP-161-m01	Renorr	nalizati	on Group a	and Critical Phenomena						
	ECTS	6	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	es		V (3) + R (1) Module taught in: Gern	nan or English		·			
	Metho	a or ass		b) oral examination of e c) oral examination in g d) project report (appro e) presentation/talk (a If a written examination form of an oral examina- the lecturer must inform Language of assessme	pprox. 30 minutes). h was chosen as metho ation of one candidate on n students about this b nt: German and/or Engl	prox. 30 minutes) or prox. 30 minutes per ca d of assessment, this r each or an oral examin y four weeks prior to th ish	may be changed and ass			
11-BWW-161-m01	Boson	isation	and Intera	ctions in One Dimensio	n					
	ECTS	6	Duration		Method of grading	numerical grade	Modul level	graduate		
	Courses			V (3) + R (1) Module taught in: German or English						
	Metho	d of ass		b) oral examination of c) oral examination in g d) project report (appro e) presentation/talk (a If a written examination form of an oral examina- the lecturer must inforr Language of assessme	pprox. 30 minutes). h was chosen as metho ation of one candidate on n students about this b nt: German and/or Engl	prox. 30 minutes) or prox. 30 minutes per ca d of assessment, this r each or an oral examin y four weeks prior to th ish	may be changed and ass			

Master's with 1 major Computational Mathematics (2019)	JMU Würzburg • generated 19-Apr-2025 • exam. reg. data record 88 f24 - - H 2019	page 45 / 50

11-EIT-161-m01	Gauge	Theori	es						
	ECTS	6	Duration	1 semester	Method of grading numerical gra	ade Modul leve	l graduate		
	Course	es		V (3) + R (1) Module taught in: Gerr	nan or English				
	Metho	d of ass		a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take th form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is chan the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester					
11-GGD-161-m01	Introdu	uction t	o Gauge/G	iravity Duality					
	ECTS	8	Duratior	1 semester	Method of grading numerical grading	ade Modul leve	l graduate		
	Course	es		V (4) + R (2) Module taught in: Gerr	nan or English				
	Metho			b) oral examination of c) oral examination in d) project report (appr e) presentation/talk (a If a written examinatio form of an oral examin the lecturer must infor Language of assessme		tes per candidate) or ent, this may be changed and a l examination in groups. If the prior to the original examinatio	method of assessment is changed, on date at the latest.		
11-EFQ-161-m01		uction t	o Fraction	al Quantisation					
	ECTS	6	Duration		Method of grading numerical gra	ade Modul leve	l graduate		
	Course	es		V (3) + R (1) Module taught in: Gerr	nan or English				
	Metho	d of ass	sessment	b) oral examination of c) oral examination in d) project report (appr e) presentation/talk (a If a written examinatio form of an oral examin the lecturer must infor Language of assessme		tes per candidate) or ent, this may be changed and a l examination in groups. If the prior to the original examinatio	method of assessment is changed, on date at the latest.		

Master's with 1 major Computational Mathematics (2019)	JMU Würzburg • generated 19-Apr-2025 • exam. reg. data record 88 f24 - - H 2019	page 46 / 50

11-TEF-161-m01	Topolo	Topological Effects in Electronic Systems									
	ECTS	6	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate			
	Course	!S		V (3) + R (1) Module taught in: G	erman or English						
	Metho	d of ass		 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. 							
	Field T	h a a rati			: In the semester in which	the course is offered a	and in the subsequent se	emester			
11-FTAS-161-m01		-		s of Solid State Phys							
	ECTS	6	Duration		Method of grading	numerical grade	Modul level	graduate			
	Course	:S		V (3) + R (1) Module taught in: G	erman or English						
				 b) oral examination c) oral examination d) project report (ap e) presentation/talk If a written examination form of an oral examination the lecturer must influence Language of assess 		pprox. 30 minutes) or pprox. 30 minutes per o od of assessment, this each or an oral examin by four weeks prior to t glish	may be changed and ass nation in groups. If the m he original examination o				
11-AKM-161-m01	Cosmo		Duration		Mathadafaradina	numerical aredo	Madullaval	graduata			
	ECTS Course	6 25		n 1 semester Method of grading numerical grade Modul level graduate V (3) + R (1) Module taught in: German or English							
	Method of assessment			 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester 							

Master's with 1 major Computational Mathematics (2019)	JMU Würzburg • generated 19-Apr-2025 • exam. reg. data record 88 f24 - - H 2019	page 47 / 50

11-AST-161-m01	Theoretical Astrophysics								
	ECTS	6	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate	
	Course	!S		V (2) + R (2) Module taught in: Gerr	nan or English				
	Metho	d of ass		 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester 					
11-APL-161-m01	High E	nergy A	strophysic	CS					
	ECTS	6	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate	
	Course	S		V (3) + R (1) Module taught in: Gerr	nan or English				
	Metho			b) oral examination of c) oral examination in (d) project report (appro e) presentation/talk (a If a written examinatio form of an oral examin the lecturer must infor Language of assessme	pprox. 30 minutes). n was chosen as metho ation of one candidate of m students about this b ent: German and/or Engl	prox. 30 minutes) or prox. 30 minutes per ca d of assessment, this r each or an oral examin y four weeks prior to th ish	may be changed and ass		
11-RQFT-161-m01		-	uantum Fie		-				
	ECTS	8	Duration		Method of grading	numerical grade	Modul level	graduate	
	Course	S		V (4) + R (2) Module taught in: German or English					
	Metho	d of ass		b) oral examination of c) oral examination in a d) project report (appro e) presentation/talk (a If a written examinatio form of an oral examin the lecturer must infor Language of assessme	pprox. 30 minutes). n was chosen as metho ation of one candidate of m students about this b ent: German and/or Engl	prox. 30 minutes) or prox. 30 minutes per ca d of assessment, this each or an oral examin y four weeks prior to th ish	may be changed and ass		

Master's with 1 major Computational Mathematics (2019)	JMU Würzburg • generated 19-Apr-2025 • exam. reg. data record 88 f24 - - H 2019	page 48 / 50

11-QFT2-161-m01	Quantum Field Theory II									
	ECTS	8	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	S		V (4) + R (2) Module taught in: Gern	nan or English					
	Metho	d of ass		 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester 						
11-TEP-161-m01	Theore	tical Ele	ementary l	Particle Physics						
	ECTS	8	Duration	1 semester	Method of grading	numerical grade	Modul level	graduate		
	Course	!S		V (4) + R (2) Module taught in: Gern	nan or English					
	Metho	d of ass		form of an oral examina the lecturer must inforr Language of assessme	one candidate each (ap groups (groups of 2, app ix. 8 to 10 pages) or oprox. 30 minutes). It was chosen as method ation of one candidate of n students about this b nt: German and/or Engl	prox. 30 minutes) or prox. 30 minutes per ca d of assessment, this r each or an oral examin y four weeks prior to th ish	nay be changed and ass			
11-ATTP-161-m01		· · ·		retical Elementary Parti						
	ECTS	6	Duration		Method of grading	numerical grade	Modul level	graduate		
	Course			V (3) + R (1) Module taught in: Gern						
	Metho	d of ass		form of an oral examina the lecturer must inforr Language of assessme	one candidate each (ap groups (groups of 2, app x. 8 to 10 pages) or oprox. 30 minutes). was chosen as method ation of one candidate of n students about this b nt: German and/or Engl	prox. 30 minutes) or prox. 30 minutes per ca d of assessment, this r each or an oral examin y four weeks prior to th ish	nay be changed and ass			

Master's with 1 major Computational Mathematics (2019)	JMU Würzburg • generated 19-Apr-2025 • exam. reg. data record 88 f24 - - H 2019	page 49 / 50

11-BSM-161-m01	Models Beyond the Standard Model of Elementary Particle Physics								
	ECTS 6 Duration			า	1 semester	Method of grading	numerical grade	Modul level	graduate
	Courses			V (3) + R (1) Module taught in: German or English					
Thesis (30 ECTS cre				 a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest. Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester 					
10-M=MACM-161-	Master Thesis Computational Mathematics								
mo1	ECTS 30 Duration		ı	1 semester	Method of grading	numerical grade	Modul level	graduate	
	Courses			No courses assigned to module					
	Method of assessment			Master's thesis (750 to 900 hours total) Registration and assignment of topic in consultation with supervisor. Language of assessment: German or English					
	other prerequisites			The supervisor may make the successful completion of certain modules that are relevant for the respective topic a prerequisi- te for the assignment of the topic.					
	Additional Information			Time to complete: 6 months					