

Annex SFB

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

Responsible: Institute of Mathematics

Examination regulations version: 2014

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

= lecture

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

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

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

= list of modules

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

Conventions for the modules in this SFB:

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

ditable for bonus.

Information on assessment procedures:

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

ASP02009

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

24-Mar-2014 (2014-6)

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	o be specified in the form X (y) with course type X abbreviated as specified above and number of weekly contact hours y						
	Method of as	ssessme	ent							
	Only after su completion o		l if applica	f applicable						
	Other prerequisites		if applica	if applicable						
	Participants and allocation of places		cati- if applica	if applicable						
	Additional information		on if applica	if applicable						
	Referred to in	n LPO I	if applica	ble (examination re	gulations for teachin	g-degree programmes)				

Compulsory Course	es (99 EC	TS cred	its)							
Compulsory Course	es Analys	is (29 E	CTS cred	lits)						
10-M-ANA-G-131-	Fundam	entals	Analysis							
mo1	ECTS	8	Duratio	1	1 semester	Method of grading	(not) successfully com	pleted	Modul level	undergraduate
	Courses	;		V + Ü	(no information on S	SWS (weekly contact	hours) and course lange	uage ava	ilable)	-
	Method	of asse	essment		written examination (approx. 90 to 180 minutes) and approx. 12 exercise sheets with approx. 4 exercises each Language of assessment: German, English if agreed upon with the examiner					
10-M-ANA-Ü-131-	Overvie	w Analy	/sis							
mo1	ECTS	12	Duratio	<u> </u>	1 semester	Method of grading	numerical grade		Modul level	undergraduate
	Courses			V + Ü	(no information on S	SWS (weekly contact	hours) and course lang	uage ava	ilable)	
10 M V/AN 101 mou	Method of assessment			M-AN	oral examination of one candidate each (approx. 30 minutes); assessment will have reference to the contents of modules 10-M-ANA-G and 10-M-ANA-Ü. Language of assessment: German, English if agreed upon with the examiner					
10-M-VAN-131-m01	Advance	ed Anal	ysis							
	ECTS	9	Duratio	<u> </u>	1 semester	Method of grading	numerical grade		Modul level	undergraduate
	Courses			V + Ü	(no information on S	SWS (weekly contact	hours) and course lange	uage ava	ilable)	
	Method of assessment		essment	written examination (approx. 90 to 180 minutes); if announced by the lecturer at the beginning of the course, the written examination can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes) Language of assessment: German, English if agreed upon with the examiner						
Compulsory Course	es Linear	Algebra	a (20 ECT	S cred	its)					
10-M-LNA-G-131-	Fundam	entals	Linear Al	gebra						
mo1	ECTS	8	Duratio	1	1 semester	Method of grading	(not) successfully com	pleted	Modul level	undergraduate
	Courses	;		V + Ü	(no information on S	SWS (weekly contact	hours) and course lange	uage ava	ilable)	
	Method	of asse	essment		n examination (applage of assessment:		es) and approx. 12 exerc	ise shee	ts with approx	. 4 exercises each
10-M-LNA-Ü-131-	Overvie	w Linea	r Algebra	3	· · · · · ·					
mo1	ECTS	12	Duratio	1	1 semester	Method of grading	numerical grade		Modul level	undergraduate
	Courses	;		V + Ü	(no information on S	SWS (weekly contact	hours) and course lang	uage ava	ilable)	
	Method of assessment		oral examination of one candidate each (approx. 30 minutes); assessment will have reference to the contents of modules 1 M-ANA-G and 10-M-ANA-Ü. Language of assessment: German, English				ce to the contents of modules 10-			

Compulsory Cours	es Nume	rical Ma	athematic	s (20	ECTS credits)						
10-M-NUM-G-131-	Fundar	nentals	Numerica	ıl Mati	hematics						
mo1	ECTS	8	Duratio	1	1 semester	Method of grading	g (not) successfully completed	d Modul level	undergraduate		
	Course	S		V + Ü	(no information or	n SWS (weekly contac	t hours) and course language	available)			
	Method	d of ass	essment	exam group	ination can be repose (groups of 2, ap	laced by an oral exan	tes); if announced by the lectu nination of one candidate each		ing of the course, the written utes) or an oral examination in		
10-M-NUM-Ü-131-	Overvi	ew Num	erical Ma	thema	nematics						
mo1	ECTS	12	Duratio	1	1 semester	Method of grading	numerical grade	Modul level	undergraduate		
	Course	S		V + Ü	(no information or	n SWS (weekly contac	t hours) and course language	available)			
	Method of assessment			modı	ule 10-M-NUM-G as		rox. 30 minutes); assessment l sub-field of applied mathema		ce to the sub-field dealt with in by the candidate		
Compulsory Cours	es Advar	iced Co	mputatio	nal Ma	thematics (20 ECT	S credits)					
- L	Fundar	Fundamentals Advanced Computational Mathematics									
mo1	ECTS	8	Duration	1	1 semester	Method of grading	(not) successfully completed	d Modul level	undergraduate		
	Course	S		V + Ü	(no information or	n SWS (weekly contac	t hours) and course language	available)			
	Method of assessment			written examination (approx. 90 to 180 minutes); if announced by the lecturer at the beginning of the course, the written examination can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes) Language of assessment: German, English							
10-M-VTC-Ü-131-	Overview Advanced Computational Mathematics										
mo1	ECTS	12	Duratio	1	1 semester	Method of grading	numerical grade	Modul level	undergraduate		
	Course	S		V + Ü	V + Ü (no information on SWS (weekly contact hours) and course language available)						
				oral examination of one candidate each (approx. 30 minutes); assessment will have reference to the sub-field dealt with in module 10-M-VTC-G as well as an additional sub-field of applied mathematics as selected by the candidate Language of assessment: German, English							
Compulsory Cours	es Mode	lling an	d Comput	ationa	al Science (10 ECTS	credits)					
10-M-MWR-131-	Modell	ing and	Computa	tional	Science						
mo1	ECTS	10	Duration	1	1 semester	Method of grading	numerical grade	Modul level	undergraduate		
	Course	S		V + Ü	(no information or	n SWS (weekly contac	t hours) and course language	available)			
				exam group	ination can be repos (groups of 2, ap	examination (approx. 90 to 180 minutes); if announced by the lecturer at the beginning of the course, the written nation can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in (groups of 2, approx. 30 minutes) age of assessment: German, English					

Compulsory Electiv	es (50 ECTS cred	dits)								
Computational Mat	hematics (18 EC	TS credit	s)							
10-M-ERC-131-m01	Selected Topic	s from Co	mputa	mputational Mathematics						
	ECTS 10	Duration	1	1 semester	Method of grading	numerical grade	Modul level	undergraduate		
	Courses					hours) and course language a	vailable)			
	Method of asse		Langu	oral examination of one candidate each (approx. 30 minutes) Language of assessment: German, English						
10-M-GES-131-m01				ry of Mathematics						
	ECTS 4	Duration		1 semester		(not) successfully completed		undergraduate		
	Courses			-		hours) and course language a	vailable)			
	Method of asse	essment	Asses			s) the course is offered and in th	e subsequent se	emester		
10-M-MSC-131-	Mathematical \	Writing					'			
mo1	ECTS 4	Duration	1	1 semester	Method of grading	(not) successfully completed	Modul level	undergraduate		
	Courses			/ + Ü (no information on SWS (weekly contact hours) and course language available)						
	Method of asse	essment	Asses	project assignment (approx. 60 to 120 minutes) Assessment offered: in the semester in which the course is offered and in the subsequent semester Language of assessment: German, English						
10-M-PRO-131-m01	Proseminar Mathematics									
	ECTS 4	Duration		1 semester		(not) successfully completed		undergraduate		
	Courses				· /	rs) and course language availa	able)			
	Method of asse	essment	talk (approx. 60 to 120 minutes) Assessment offered: in the semester in which the course is offered and in the subsequent semester Language of assessment: German, English					emester		
10-M-SCH-131-m01	School Mather	natics fro	m a Hi	gher Perspective	-					
	ECTS 4	Duration	•	1 semester		(not) successfully completed		undergraduate		
	Courses					hours) and course language a	vailable)			
	Method of assessment		project assignment (approx. 60 to 120 minutes) Assessment offered: in the semester in which the course is offered and in the subsequent semester Language of assessment: German, English				emester			
10-M-SE2-131-m01		ninar in M	athem	atics						
	ECTS 5	Duration		1 semester		(not) successfully completed		undergraduate		
	Courses					rs) and course language avail	able)			
	Method of asse	essment		pprox. 60 to 120 mi age of assessment:						

Application-oriented Subject (50 ECTS credits)

Students must take one of the following application-oriented subjects, each with the specified mandatory courses and/or mandatory electives: Biologie (Biology), Chemie

Students must take (Chemistry), Inform					each with the specif	ied mandatory course	es and/or mandatory elec	ctives: Biologie (Biology), Chemie		
Application-oriente	d Subject B	iology (50 EC	TS cre	dits)						
07-1A1ZPF-AF-141-	The Plant I	(ingdom (AF)								
mo1	ECTS 5	Duration		1 semester	Method of grading	_	Modul level	undergraduate		
	Courses			+ Ü (no information on SWS (weekly contact hours) and course language available)						
				n examination (appr	ox. 60 minutes)					
07-1A1TI-AF-141-		and the Anima		dom (AF)						
mo1	ECTS 5 Duration			1 semester	Method of grading		Modul level	undergraduate		
	Courses					hours) and course lar	nguage available)			
			writte	n examination (appr	ox. 60 minutes)					
07-2A2PHYPF- AF-141-m01		iology (AF)			T					
AF-141-11101	ECTS 4	Duration		1 semester	Method of grading		Modul level	undergraduate		
	Courses					hours) and course lar	nguage available)			
4 DIN			writte	ritten examination (approx. 60 minutes)						
07-2A2PHY- TI-AF-141-m01	Animal Physiology (AF)				laad to the					
	ECTS 4	Duration		1 semester	Method of grading		Modul level	undergraduate		
	Courses					hours) and course lar	iguage available)			
07-2A2GENV-		Neurobiology,		n examination (appr	ox. 60 minutes)					
AF-141-mo1	ECTS 5	Duration		1 semester	Method of grading	numerical grade	Modul level	undergraduate		
	Courses	Duration				hours) and course lar		undergraduate		
		assessment		`	` ,	· · · · · · · · · · · · · · · · · · ·	iguage available)			
07-M-BST-132-m01	Method of assessment written examination (approx. 60 to 90 minutes) Mathematical Biology and Biostatistics									
	ECTS 4	Duration		1 semester	Method of grading	numerical grade	Modul level	undergraduate		
	Courses	[- 0. 0.0.0				hours) and course lar		Tanaci Grandate		
	Method of	assessment		n examination (appr			, ,			
07-3A3E-		ental Biology								
BIOPF-AF-141-mo1	ECTS 4	Duration	ı	1 semester	Method of grading	numerical grade	Modul level	undergraduate		
	Courses	,	V + Ü	(no information on S	SWS (weekly contact	hours) and course lar	nguage available)			
	Method of	assessment	writte	n examination (appr	ox. 60 minutes)		,			
07-3A3OE-	Plant and A	Animal Ecolog	sy				,			
KO-132-mo1	ECTS 6	Duration	า	1 semester	Method of grading	numerical grade	Modul level	undergraduate		
	Courses					hours) and course lar	nguage available)			
	Method of	assessment	writte	n examination (appr	ox. 90 minutes)					

07-3A3GEM-	Genes,	Molecu	les, Tech	nologi	es					
T-132-m01	ECTS	6	Duratio	1	1 semester	Method of grading	numerical grade	Modul level	undergraduate	
	Course	Courses		V (no	(no information on SWS (weekly contact hours) and course language available)					
	Method of assessment		writte	vritten examination (approx. 90 minutes)						
07-3A3BC-141-m01	-3A3BC-141-mo1 Basic Biochemistry (AF)									
	ECTS 4 Duration		Duratio	า	1 semester	Method of grading	numerical grade	Modul level	undergraduate	
	Courses			V + Ü	+ Ü (no information on SWS (weekly contact hours) and course language available)					
	Method	d of asse	essment	writte	written examination (approx. 60 minutes)					
07-4A4FAU-AF-141-	The Fau	una of G	ermany (AF)						
mo1	ECTS	7	Duratio	า	1 semester	Method of grading	numerical grade	Modul level	undergraduate	
	Courses Method of assessment			V + Ü	+ E (no information o	on SWS (weekly cont	act hours) and course language	available)		
				written assessment with practical components (approx. 90 minutes) Assessment offered: once a year, summer semester						
	other p	rerequis	sites	Admission prerequisite to assessment: regular attendance of field trips (minimum 80%).						

07-4S1N-	Neurob	Neurobiology 1										
VO1-132-mo1	ECTS	5	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	undergraduate			
	Courses	5		Ü+S	(no information on S	SWS (weekly contact	hours) and course language a	vailable)				
	Method	Method of assessment			(approx. 30 minutes tion (approx. 20 to 3	o) or d) oral examinati go minutes) or f) praci vill not exceed a maxi	on in groups of up to 3 candid tical examination (on average	ates (approx. 20 approx. 2 hours;	examination of one candidate minutes per candidate) or e) pre- time to complete varies accor- out the method and length of the			
	Particip cation o			follow dits. So Bache will be Bache of the ber of from the re will poner cessful waiting prima ked a studie them adding the to the lated the sa (5%): achief achief amon cation	As: Places will prima should the module belor's degree subject a allocated to stude elor's degree subject application-oriente places available in the other quota. Should be a uniform regulant that are concerned ully completed at least is will be maintainly be allocated according to the numbers or of all module coatik (Mathematics)) to their average gradair total number of Edgas the sum of these ame ranking, places Places will be allocated, places will be allocated, places will be a gapplicants with the by lot. Should the interest of the sum of the search places will be a gapplicants with the by lot. Should the interest of the sum of the search places will be a gapplicants with the sum of the sum	rily be allocated to stope used in other subjet Biologie (Biology) with the Bachelor's ts Computational Market Biology (as one quota exceed the ould there be, within cation for the courses of will be allocated in ast one other module ined and places re-alcording to the applicate ber of ECTS credits thomponents in the subject of the time of applicate weighted according to the will be allocated according to the dule components of the dule components of the dule components of the same number of subject to the same	udents of the Bachelor's degreets, there will be two quotas: ith 180 ECTS credits and 5% of degree subject Biologie (Biologie subject Biologie (Biologie subject Biologie) (Biologie subject Biologie) (Biologie)	see subject Biology 95% of places we foliaces (a minimal places), each of the foliaces with 60 ECTS athematics), each of the foliaces with 60 this case, places this procedure, a module will be grade. Selection procedure, a foliaces of the foliaces (qualitative rangulicants' position of the foliaces): total policants with the foliaces of the foliace	ces, places will be allocated as gie (Biology) with 180 ECTS creill be allocated to students of the num of one participant in total) is credits and to students of the h with 180 ECTS credits, as particing' subjects). Should the nums will be allocated to applicants a restricted number of places, theon all courses of a module compplicants who already have suctiven preferential consideration. A process group 1 (95%): Places will purpose, applicants will be randl assessments taken during their Chemistry), Physik (Physics), Manants will be ranked, firstly, accorking) and, secondly, according in a third ranking will be calcumking. Among applicants with by lot. Selection process group 2 allowed in the respective applicant; to Quota 3 (25% of places): alloogy) with 180 ECTS credits, pla-			

07-4S1N-	Integrative B	Integrative Behavioral Biology 1											
V02-132-m01	ECTS 5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate						
	Courses	V +	S (no information on	SWS (weekly contact	hours) and course langu	uage available)							
	Method of as	eac sen ding ass	h (approx. 30 minute tation (approx. 20 to g to subject area but essment prior to the	s) or d) oral examinat 30 minutes) or f) prac will not exceed a max course.	ion in groups of up to 3 of the total examination (on avimum of 4 hours). Stude	candidates (approx. 2cverage approx. 2 hours ents will be informed al	l examination of one candidate o minutes per candidate) or e) pre- ; time to complete varies accor- pout the method and length of the						
	Participants a cation of place	tes follo dits Bac will Bac of the study for	ows: Places will prima is. Should the module chelor's degree subject the application-orient of places available in the other quota. Should be a uniform regulation that are concerned fully completed at letting list will be maint marily be allocated acting list will be maint matik (Mathematics)) go to their average graheir total number of End as the sum of these same ranking, places so): Places will be allocated, places will be long applicants with the long applicants with the lon by lot. Should the	arily be allocated to stop be used in other subject Biologie (Biology) wents of the Bachelor's cts Computational Maked subject Biology (as none quota exceed thould there be, within lation for the courses ed will be allocated in east one other module ained and places re-according to the application for the subject of ECTS credits the components in the subject weighted according to the subject will be allocated according to the course at the time of application for the course at the time of application at the time of according to the odule components of the same number of subject in the same number	tudents of the Bachelor' ects, there will be two quith 180 ECTS credits and degree subject Biologie thematics and Mathematics and Mathematics and Mathematics well as potentially to steen umber of application one module component of one module component of one module component of the respellocated as they become a standardised procedule component of the respellocated as they become ants' previous academic hey have achieved and they are the	s degree subject Biology uotas: 95% of places with 5% of places (a mining et (Biology) with 60 ECTS atik (Mathematics), each tudents of other 'imports, the remaining places, several courses with sent. In this case, places are. In this procedure, a ective module will be go available. Selection per achievements. For this cheir average grade of a style (excluding Chemie (as follows: First, applicate of credits (qualitative range) (excluding to this third rate ranking or otherwise la 1 (50% of places): total mong applicants with the modern of subject semests will be allocated by loger the service of subject semests will be allocated by loger the service of subject semests will be allocated by loger the service of subject semests will be allocated by loger the service of subject semests will be allocated by loger the service of subject semests will be allocated by loger the service of subject semests will be allocated by loger the service of subject semests and service of subject semests will be allocated by loger the service of subject semests and service of subject semests will be allocated by loger the service of subject semests and service of service	aces, places will be allocated as gie (Biology) with 180 ECTS crevill be allocated to students of the num of one participant in total) Scredits and to students of the ch with 180 ECTS credits, as particing' subjects). Should the nums will be allocated to applicants a restricted number of places, these on all courses of a module complicants who already have succeiven preferential consideration. A process group 1 (95%): Places will be purpose, applicants will be randal assessments taken during their (Chemistry), Physik (Physics), Mants will be ranked, firstly, accornicing and, secondly, according in a third ranking will be calculated and the process group 2 tal number of ECTS credits already the same number of ECTS credits ters of the respective applicant; at. Quota 3 (25% of places): allology) with 180 ECTS credits, planlow						

07-4S1N-**Functional Morphology of Arthropods** V03-132-mo1 ECTS Method of grading | numerical grade Modul level 5 Duration 1 semester undergraduate Courses V + Ü (no information on SWS (weekly contact hours) and course language available) Method of assessment | term paper (approx. 5 to 10 pages) Number of places: 20. Should the number of applications exceed the number of available places, places will be allocated as Participants and allofollows: Places will primarily be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS crecation of places dits. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one participant in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in a standardised procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot. Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50% of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25% of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25% of places): allocation by lot. Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

07-4S1M-	Basics in Light- and Electron-Microscopy											
Z1-132-m01	ECTS 5 Duratio		Method of grading	numerical grade	Modul level	undergraduate						
	Courses	V + Ü (no information	on SWS (weekly contact	hours) and course language	available)							
	Method of assessment	written examination (approx. 30 to 60 minutes	s)								
	Participants and allocation of places	Number of places: 18 follows: Places will p dits. Should the mod Bachelor's degree su will be allocated to st Bachelor's degree su of the application-ori ber of places availab from the other quotare will be a uniform reponent that are conccessfully completed awaiting list will be maprimarily be allocated ked according to the studies or of all modules thematik (Mathematiding to their average to their total number lated as the sum of the same ranking, places will be a achieved in modules achieved, places will among applicants wication by lot. Should	. Should the number of a rimarily be allocated to so ule be used in other subjuict Biologie (Biology) votated to so be the Bachelor's bjects Computational Material Biology (as le in one quota exceed the Should there be, within egulation for the courses terned will be allocated in at least one other module aintained and places read according to the application of ECTS credits the time of application of ECTS credits achieved are the weighted according to the seet two rankings, and places will be allocated according to the Amodule components of be allocated by lot. Quote the same number of such the same number of such be allocated by lot. Quote the the same number of such	pplications exceed the number tudents of the Bachelor's degreets, there will be two quotativith 180 ECTS credits and 5% degree subject Biologie (Biothematics and Mathematik (Sowell as potentially to student enumber of applications, thone module component, sevor of one module component, sevor of one module component. It a standardised procedure. It is component of the respective ellocated as they become availity previous academic achief they have achieved and their bject of Biologie (Biology) (exaction. This will be done as foliog to the number of ECTS credit (quantitative ranking). The alaces will be allocated according to the qualitative ranking following quotas: Quota 1 (5) the Faculty of Biology; among the 2 (25% of places): number subject semesters, places will in the Bachelor's degree subject semesters.	gree subject Biolo s: 95% of places work of places (a minimalogy) with 60 ECT Mathematics), earts of other 'impore remaining place eral courses with this case, place in this procedure, erangle will be gilable. Selection prevenents. For this average grade of excluding Chemie (allows: First, applications) to this third resign or otherwise go% of places): to grapplicants with of subject semes be allocated by lower subject semes of subject semes be allocated by lower subject semes of subject semes	aces, places will be allocated as gie (Biology) with 180 ECTS crewill be allocated to students of the mum of one participant in total) S credits and to students of the ch with 180 ECTS credits, as part ring' subjects). Should the numes will be allocated to applicants a restricted number of places, these on all courses of a module comapplicants who already have sucgiven preferential consideration. A process group 1 (95%): Places will sepurpose, applicants will be ranall assessments taken during their (Chemistry), Physik (Physics), Macants will be ranked, firstly, accornking) and, secondly, according an in a third ranking will be calcular anking. Among applicants with by lot. Selection process group 2 tal number of ECTS credits already the same number of ECTS credits ters of the respective applicant; pt. Quota 3 (25% of places): allobology) with 180 ECTS credits, plane						

07-4S1M-**Analysis of Chromosomes** Z2-132-mo1 **ECTS** ۱5 Duration 1 semester Method of grading | numerical grade Modul level undergraduate Courses V + Ü (no information on SWS (weekly contact hours) and course language available) Method of assessment | written examination (approx. 30 to 60 minutes) Number of places: 18. Should the number of applications exceed the number of available places, places will be allocated as Participants and allofollows: Places will primarily be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS crecation of places dits. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one participant in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in a standardised procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot. Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50% of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25% of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25% of places): allocation by lot. Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

07-4S1M-	Special Bioinformatics 1											
Z6-132-m01	ECTS 5 Duration	n 1 semester	Method of grading numerical grade	Modul level	undergraduate							
	Courses	V + Ü (no information o	n SWS (weekly contact hours) and course langua	ge available)								
	Method of assessment	log (approx. 10 to 20 pages) Language of assessment: German or English										
	Participants and allocation of places	follows: Places will prim dits. Should the module Bachelor's degree subject will be allocated to study of the application-orien ber of places available from the other quota. Since will be a uniform regulation point that are concern cessfully completed at limiting list will be main primarily be allocated a ked according to the nustudies or of all module thematik (Mathematics) ding to their average grato their total number of lated as the sum of these the same ranking, place (5%): Places will be allocatived in modules/machieved, places will be among applicants with cation by lot. Should the	Should the number of applications exceed the number of allocated to students of the Bachelor's ceede be used in other subjects, there will be two quoect Biologie (Biology) with 180 ECTS credits and 5 dents of the Bachelor's degree subject Biologie (Bects Computational Mathematics and John one quota exceed the number of applications, hould there be, within one module component, sulation for the courses of one module component and will be allocated in a standardised procedure least one other module component of the respect and and places re-allocated as they become a according to the applicants' previous academic according to the application. This will be done as a deweighted according to the number of ECTS credits they have achieved and the example of according to the number of ECTS credits achieved (quantitative ranking). The set wo rankings, and places will be allocated according to the qualitative ranking to the following quotas: Quota 1 module components of the Faculty of Biology; amone allocated by lot. Quota 2 (25% of places): number of subject semesters, places we allocated by lot. Quota 2 (25% of places): number of subject semesters, places we module be used only in the Bachelor's degree scording to the selection process of group 1.	degree subject Biologitas: 95% of places with 60 ECTS k (Mathematics), each dents of other 'importhe remaining place everal courses with a large module will be gvailable. Selection parietal selection par	gie (Biology) with 180 ECTS crevill be allocated to students of the num of one participant in total) is credits and to students of the ch with 180 ECTS credits, as part ting' subjects). Should the nums will be allocated to applicants a restricted number of places, these on all courses of a module complicants who already have succiven preferential consideration. A process group 1 (95%): Places will be purpose, applicants will be ranall assessments taken during their Chemistry), Physik (Physics), Maants will be ranked, firstly, accornking) and, secondly, according in a third ranking will be calculariting. Among applicants with by lot. Selection process group 2 tal number of ECTS credits already the same number of ECTS credits already the same number of ECTS credits already the same number of places): allo-							

Molecular modelling - From DNA to Protein 07-4S1PS1-132mo1 **ECTS** ۱5 Duration 1 semester Method of grading | numerical grade Modul level undergraduate Courses V + Ü (no information on SWS (weekly contact hours) and course language available) Method of assessment | computerised practical examination (approx. 6 hours) Number of places: 18. Should the number of applications exceed the number of available places, places will be allocated as Participants and allofollows: Places will primarily be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS crecation of places dits. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one participant in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in a standardised procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot. Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50% of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25% of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25% of places): allocation by lot. Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

07-4S1PS2-132-Methods in Plant Ecophysiology mo₁ **ECTS** ۱5 Duration 1 semester Method of grading | numerical grade Modul level undergraduate Courses Ü + S (no information on SWS (weekly contact hours) and course language available) Method of assessment log (approx. 10 to 20 pages) Participants and allo-Number of places: 15. Should the number of applications exceed the number of available places, places will be allocated as follows: Places will primarily be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS crecation of places dits. Should the module be used in other subjects, there will be two quotas: 95% of places will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one participant in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in a standardised procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot. Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50% of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25% of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25% of places): allocation by lot. Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

07-4S1PS3-132-	Pharmaceution	Pharmaceutical Drugs in Plants										
mo1	ECTS 5	Duration	1 semester	Method of grading numerical grade	Modul level	undergraduate						
	Courses	Ü+	S (no information on	SWS (weekly contact hours) and course langu	uage available)							
	Method of as	eac sen din ass	h (approx. 30 minute tation (approx. 20 to g to subject area but essment prior to the		candidates (approx. 20 rerage approx. 2 hours nts will be informed al	o minutes per candidate) or e) pre- ; time to complete varies accor- pout the method and length of the						
	Participants a	tes follodits Bac will Bac of t ber fror re v por ces wai prir ked stue the ding to t late the (5% ach ach ame cati	ows: Places will prime. Should the module chelor's degree subject the allocated to study the application-orient of places available in the other quota. Should be a uniform regulation that are concerned sfully completed at letting list will be maint marily be allocated acting list will be maint marily be allocated acting to their average gratheir total number of End as the sum of these same ranking, places allocated in modules/modieved, places will be long applicants with the ong applicants with the one by lot. Should the	nould the number of applications exceed the narily be allocated to students of the Bachelor's be used in other subjects, there will be two questions of the Bachelor's degree subject Biologie ents of the Bachelor's degree subject Biologie cts Computational Mathematics and Indiana exceed the number of applications and there be, within one module component, lation for the courses of one module component of the respectation of the allocated in a standardised procedule ast one other module component of the respectation and places re-allocated as they become according to the application. This will be done and the time of application. This will be done and the time of application. This will be done and the weighted according to the number of ECTS ECTS credits achieved (quantitative ranking). The two rankings, and places will be allocated according to the qualitative cated according to the following quotas: Quota and allocated by lot. Quota 2 (25% of places): number same number of subject semesters, places are module be used only in the Bachelor's degree according to the selection process of group 1.	s degree subject Biologuotas: 95% of places values: 95% of other 'imports, the remaining places, several courses with ent. In this case, places are. In this procedure, active module will be got available. Selection places achievements. For this heir average grade of a cy) (excluding Chemie (as follows: First, applicated in the applicants' position coording to this third ray ranking or otherwise at 1 (50% of places): to mong applicants with the of subject semest will be allocated by lower the semest will be	gie (Biology) with 180 ECTS crevill be allocated to students of the mum of one participant in total) Socredits and to students of the ch with 180 ECTS credits, as particing' subjects). Should the number of swill be allocated to applicants a restricted number of places, these on all courses of a module compaphicants who already have succiven preferential consideration. A process group 1 (95%): Places will be purpose, applicants will be randall assessments taken during their Chemistry), Physik (Physics), Maants will be ranked, firstly, accornking) and, secondly, according in a third ranking will be calculating. Among applicants with by lot. Selection process group 2 tal number of ECTS credits already the same number of ECTS credits ters of the respective applicant; bt. Quota 3 (25% of places): allo-						

07-S1-LP1-132-m01	Laborat	tory Pra	ctical Co	ırse l			'		
	ECTS	5	Duration	ı	1 semester	Method of grading numerical grade	Modul level	undergraduate	
	Courses	S	•	P (no	information on SWS	(weekly contact hours) and course lan	guage available)		
	Method	l of asse	essment	each senta ding t	(approx. 30 minutes) tion (approx. 20 to 3	oprox. 45 to 60 minutes) or b) log (appo) or d) oral examination in groups of up o minutes) or f) practical examination ill not exceed a maximum of 4 hours).	o to 3 candidates (approx. : (on average approx. 2 hou	20 minutes per candidate) or e) pre- rs; time to complete varies accor-	
	other p	rerequis	sites	Pleas	e consult with acade	mic advisory service in advance.	,		
07-S1-Ex1-132-m01	Excursi	on I							
	ECTS	5	Duratio	ı	1 semester	Method of grading numerical grade	Modul level	undergraduate	
	Courses	 S	•	E (no	information on SWS	(weekly contact hours) and course lan	guage available)		
	Method of assessme				a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) presentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete varies according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course.				
	other p	rerequis	sites	Pleas	e consult with acade	mic advisory service in advance.	,		
07-S1-IP1-132-m01	Interdisciplinary Project I								
	ECTS	5	Duratio	1	1 semester	Method of grading numerical grade	Modul level	undergraduate	
	Courses	S		R (no	information on SWS	(weekly contact hours) and course lan	guage available)		
	Method	l of asse	essment	each senta ding t	(approx. 30 minutes) tion (approx. 20 to 3	oprox. 45 to 60 minutes) or b) log (appo) or d) oral examination in groups of up o minutes) or f) practical examination ill not exceed a maximum of 4 hours). ourse.	o to 3 candidates (approx. : (on average approx. 2 hou	20 minutes per candidate) or e) pre- rs; time to complete varies accor-	
	other p	rerequis	sites	Pleas	e consult with acade	mic advisory service in advance.	·		
07-5EP-132-m01	Externa	l Practi	cal Cours	е			<u> </u>		
	ECTS	10	Duratio	1	1 semester	Method of grading numerical grade	Modul level	undergraduate	
	Courses	 S		P (no	information on SWS	(weekly contact hours) and course lan	guage available)		
	Method	of asse	essment	each senta ding t	(approx. 30 minutes) tion (approx. 20 to 3	oprox. 45 to 60 minutes) or b) log (appo or d) oral examination in groups of up o minutes) or f) practical examination ill not exceed a maximum of 4 hours). ourse.	o to 3 candidates (approx. : (on average approx. 2 hou	20 minutes per candidate) or e) pre- rs; time to complete varies accor-	
	other p	rerequis	sites	Pleas	e consult with acade	mic advisory service in advance.			

07-S2-EX2-132-	Excurs	ion II				-						
mo1	ECTS	10	Duration	1	1 semester	Method of grading	numerical grade	Modul level	undergraduate			
	Course	S		E (no	information on SWS	(weekly contact hou	rs) and course langua	ge available)				
	Method	d of ass	essment	each senta ding t	a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) pre sentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete varies according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course.							
	other p	rerequi	sites	Pleas	e consult with acad	emic advisory service	in advance.					
07-S2-IP2-132-m01	Interdi	sciplina	ry Project	t II								
	ECTS	10	Duration	1	1 semester	Method of grading	numerical grade	Modul level	undergraduate			
	Course	S		R (no	information on SWS	(weekly contact hou	rs) and course langua	ge available)				
	Method of assessment			each senta ding t asses	(approx. 30 minutes tion (approx. 20 to 3 to subject area but vosment prior to the co	s) or d) oral examinat 30 minutes) or f) prac will not exceed a max course.	on in groups of up to tical examination (on mum of 4 hours). Stud	3 candidates (approx. 20 average approx. 2 hours	al examination of one candidate on minutes per candidate) or e) presi; time to complete varies accorbout the method and length of the			
	other p	rerequi	sites	Pleas	Please consult with academic advisory service in advance.							
07-S2-LP2-132-	Laboratory Practical Course II											
mo1	ECTS	10	Duration		1 semester	Method of grading		Modul level	undergraduate			
	Course			,			rs) and course langua	<u> </u>				
	Method of assessment			each senta ding t	a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) oral examination of one candidate each (approx. 30 minutes) or d) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) or e) pre sentation (approx. 20 to 30 minutes) or f) practical examination (on average approx. 2 hours; time to complete varies according to subject area but will not exceed a maximum of 4 hours). Students will be informed about the method and length of the assessment prior to the course.							
	other prerequisites			Please consult with academic advisory service in advance.								
Application-orient	ed Subje	ct Chen	nistry									
Application-orient	ed Subje	ct Chen	nistry Con	npulso	ory Courses (26 ECTS	S credits)						
08-CM1-112-m01	Introdu	ıction to	Inorgani	c Cher	mistry for Students	of Mathematics and o	ther Subjects					
	ECTS	6	Duration		1 semester	Method of grading	<u>*</u>	Modul level	undergraduate			
	Course	S		V (no	information on SWS	(weekly contact hou	rs) and course langua	ge available)				
	Method	d of ass	essment	writte	written examination (approx. 90 minutes)							
08-0C1-141-m01	Organi	c Chem	istry 1			•		,				
	ECTS	5	Duration	 1	1 semester	Method of grading	numerical grade	Modul level	undergraduate			
	Course	S		V + Ü	(no information on	SWS (weekly contact	hours) and course lan	guage available)				
	Method of assessment			written examination (approx. 90 to 180 minutes) or oral examination of one candidate each (approx. 20 to 30 minutes) or oral examination in groups (groups of 2, approx. 30 minutes) Language of assessment: German, English								
Bachelor's with 1 major (Computation	nal Mathem	natics (2014)				JMU Würzburg • generat	ed 26-Aug-2024 • exam. reg. data	record 82 f24 - - H 2014 page 18 / 26			

08-PC1-141-m01	Physical Chemistry 1: Principles of quantum mechanics and spectroscopy											
	ECTS 8	Duration		1 semester	Method of grading nu		Modul level	undergraduate				
	Courses					tact hours) and course lang						
	Method of ass		examiı Langua	written examination (approx. 90 to 180 minutes) or oral examination of one candidate each (approx. 20 to 30 minutes) or oral examination in groups (groups of 2, approx. 30 minutes) Language of assessment: German, English								
11-EFNF-072-m01	Introduction to	o Physics	for Stu	dents of Non-phys	sics-related Minor Subject	is .						
	ECTS 7	Duration		2 semester	Method of grading nu		Modul level	undergraduate				
	Courses		•	•	` '	rs) and course language a	vailable)					
	Method of ass				prox. 120 minutes)							
	Participants ar cation of place		Only a	s part of pool of g	eneral key skills (ASQ): 10	places. Places will be allo	cated by lot.					
Application-orient	ed Subject Chen	nisty Com	pulsory	/ Electives (18 ECT	S credits)							
08-0C2-141-m01	Organic Chem	istry 2										
	ECTS 9	Duration	ı	1 semester	Method of grading nu	merical grade	Modul level	undergraduate				
	Courses					hours) and course languag	ge available)					
	Method of ass	essment	written examination (approx. 180 to 240 minutes) Language of assessment: German, English									
08-PC3-141-m01		heoretica	l Chem	istry 3: Symmetry	and Quantum Chemistry							
	ECTS 6	Duration		1 semester	Method of grading nu		Modul level	undergraduate				
	Courses			•	` ,	tact hours) and course lang	, ,					
	Method of assessment		written examination (approx. 90 to 180 minutes) or oral examination of one candidate each (approx. 20 to 30 minutes) or oral examination in groups (groups of 2, approx. 30 minutes) Language of assessment: German, English									
08-TC-141-m01	Theoretical Mo	odels in C	hemistr	ry								
	ECTS 3	Duration	ı	1 semester	Method of grading nu	merical grade	Modul level	undergraduate				
	Courses		V + Ü ((no information on	SWS (weekly contact hou	ırs) and course language a	vailable)					
	Method of ass	essment	written examination (approx. 90 to 180 minutes) or oral examination of one candidate each (approx. 20 to 30 minutes) or oral examination in groups (groups of 2, approx. 30 minutes) Language of assessment: German, English									
Application-orient	ed Subject Com	puter Scie	nce (50	ECTS credits)								
10-I-ADSV-141-m01	Algorithm and	data stru	ctures									
	ECTS 5	Duration	ı	1 semester	Method of grading nu	merical grade	Modul level	undergraduate				
	Courses		_			and course language availa						
	Method of ass	essment	examiı		aced by an oral examinati			ing of the course, the written utes) or an oral examination in				

10-I-ADST-141-m01	Tutoria	utorial Algorithm and data structures												
	ECTS	5	Duratio	1	1 semester	Method of	grading	(not) successfull	y completed	Modul level	undergraduate			
	Course	S		Ü (no	information on S	WS (weekly cor	itact hou	rs) and course la	nguage availa	ble)				
	Method	l of asse	essment) completion of approx. 11 exercise sheets with approx. 4 exercises per sheet (50% of exercises to be completed correctly) or) written examination (approx. 180 to 240 minutes). Method of assessment to be selected by the candidate.									
10-l-3D-141-m01	3D Point Cloud Processing													
	ECTS	5	Duratio	ı	1 semester	Method of	grading	numerical grade		Modul level	undergraduate			
	Course	S		V + Ü	(no information o	n SWS (weekly	contact	hours) and cours	e language av	ailable)				
	Method of assessment			exam group		placed by an or oprox. 30 minut	al exami es)				ing of the course, the written utes) or an oral examination in			
10-I-AGT-141-m01	Algorit	Algorithmic Graph Theory												
	ECTS	5	Duration	1	1 semester	Method of	grading	numerical grade		Modul level	undergraduate			
	Course	<u> </u>	•	V + Ü	(no information o	n SWS (weekly	contact	hours) and cours	e language av	ailable)				
				exam group	written examination (approx. 60 to 120 minutes); if announced by the lecturer at the beginning of the course, the written examination can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes) Language of assessment: German, English									
10-I-DB-141-m01	Data Bases													
	ECTS	5	Duratio		1 semester			numerical grade		Modul level	undergraduate			
	Course				(no information o									
	Method of assessment			written examination (approx. 60 to 120 minutes); if announced by the lecturer at the beginning of the course, the written examination can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes) Language of assessment: German, English										
10-I-IÜV-141-m01	Informa	ation Tra	ansmissi	on							_			
	ECTS	5	Duration	1	1 semester	Method of	grading	numerical grade		Modul level	undergraduate			
	Course	-			V (no information on SWS (weekly contact hours) and course language available)									
	Method of assessment			written examination (approx. 60 to 120 minutes); if announced by the lecturer at the beginning of the course, the written examination can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes)										
10-l-lÜT-141-m01	Tutoria	l Inform	ation Tra	nsmis	sion									
	ECTS	5	Duratio		1 semester			(not) successfull	•		undergraduate			
	Course	5			information on S									
	Method	of asse	essment		npletion of appro tten examination						ises to be completed correctly) or by the candidate.			

10-I-KT-141-m01	Compu	tationa	l Complex	ity									
	ECTS	5	Duration	ı	1 semester	Method of grading	numerical grade	Modul level	undergraduate				
	Courses	S		V + Ü	+ Ü (no information on SWS (weekly contact hours) and course language available)								
	Method of assessment			exami group	written examination (approx. 60 to 120 minutes); if announced by the lecturer at the beginning of the course, the written examination can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes) Language of assessment: German, English								
10-I-LOG-141-mo1	Logic fo	Logic for informatics											
	ECTS	5	Duration		1 semester	Method of grading	numerical grade	Modul level	undergraduate				
	Courses	S		V + Ü	(no information	on SWS (weekly contac	t hours) and course langua	age available)					
	Method	Method of assessment written examination (approx. 60 to 120 minutes); if announced by the lecturer at the beginning of the course, the written examination can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes)											
10-I-00P-141-m01	Object	oriente	d Progran	ıming									
	ECTS	5	Duration	ı	1 semester	Method of grading	numerical grade	Modul level	undergraduate				
	Courses	S		V + Ü	V + Ü (no information on SWS (weekly contact hours) and course language available)								
	Method	d of ass		written examination (approx. 60 to 120 minutes); if announced by the lecturer at the beginning of the course, the written examination can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes) Language of assessment: German, English									
10-I-PP-141-m01	Practica	Practical Course in Programming											
	ECTS	10	Duration	ı	1 semester	Method of grading	(not) successfully comp	leted Modul level	undergraduate				
	Courses	S		P (no information on SWS (weekly contact hours) and course language available)									
	Method	Method of assessment			completion of programming exercises (approx. 240 hours) and written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes).								
	Additio	nal Info	rmation	Additional information on module duration: 1 to 2 semesters.									
10-I-RAK-141-m01	Compu	ter Arch	nitecture										
	ECTS	5	Duration		1 semester	Method of grading	numerical grade	Modul level	undergraduate				
	Courses	S		V + Ü	(no information	on SWS (weekly contac	t hours) and course langua	age available)					
	Method	d of ass	essment	written examination (approx. 60 to 120 minutes); if announced by the lecturer at the beginning of the course, the written examination can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes) Language of assessment: German, English									

10-I-RALV-141-m01	Digital computer systems											
	ECTS	5	Duration	1	1 semester	Method of grading numerical grade	Modul level	undergraduate				
	Courses	5		V (no	information on SW	S (weekly contact hours) and course language	available)					
	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 can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2, approx. 30 minutes)							
10-I-RALT-141-m01	Tutorial	Dicital	Leompute		, , , ,	orox. 30 minutes)						
10-I-RALI-141-III01			Duration		1 semester Method of grading (not) successfully completed Modul level undergraduate							
		5	Duration			/S (weekly contact hours) and course language		undergraduate				
	Courses		occmont			. 11 exercise sheets with approx. 4 exercises pe	<u> </u>	icas to be completed correctly) or				
	Method	1 01 asst	essillelli			approx. 180 to 240 minutes). Method of assess						
10-I-RK-141-m01	Computer Networks											
	ECTS	8	Duration		1 semester	Method of grading numerical grade	Modul level	undergraduate				
	Courses		-		-	SWS (weekly contact hours) and course langua	<u> </u>					
	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 can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2, approx. 30 minutes) Language of assessment: German, English								
10-I-STV-141-m01	Software Technology											
	ECTS	5	Duration	1	1 semester	Method of grading numerical grade	Modul level	undergraduate				
	Courses	5	_	V (no	information on SW	S (weekly contact hours) and course language	available)					
	Method of assessment			written examination (approx. 60 to 120 minutes); if announced by the lecturer at the beginning of the course, the written examination can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes)								
10-I-STT-141-m01	Tutorial Software Technology											
	ECTS	5	Duration	1	1 semester	Method of grading (not) successfully compl	leted Modul level	undergraduate				
	Courses	5		Ü (no	information on SW	'S (weekly contact hours) and course language	available)					
	Method	of asse	essment	a) completion of approx. 11 exercise sheets with approx. 4 exercises per sheet (50% of exercises to be completed correctly) or b) written examination (approx. 180 to 240 minutes). Method of assessment to be selected by the candidate.								
10-I-SWP-141-m01	Practica	al cours	e in softv	/are	vare							
	ECTS	10	Duration	1	1 semester	Method of grading (not) successfully compl	leted Modul level	undergraduate				
	Courses	5		P (no	information on SW	S (weekly contact hours) and course language a	available)					
	Method of assessment				completion of a larger software project in groups (approx. 300 hours per person) and final presentation (approx. 10 minutes per group)							
	Modules successfully completed			10-l-F	10-I-PP,10-I-STV							
	other pr	rerequis	sites		earning outcomes onended.	of modules 10-I-ADSV, 10-I-ADST, 10-I-SST are re	quired. Prior complet	ion of these modules is highly re-				

10-I-TIV-141-m01	Theoretic	cal Informatic	5		,		16	-			
	ECTS 5	5 Duratio	on	1 semester	Method of grading	numerical grade	Modul level	undergraduate			
	Courses		V (no	/ (no information on SWS (weekly contact hours) and course language available)							
	Method o	of assessment				es); if announced by the lecture					
				xamination can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in roups (groups of 2, approx. 30 minutes)							
10-I-TIT-141-m01	Tutorial 7	Theoretical In	ormati	rmatics							
	ECTS 5	5 Duratio		1 semester		(not) successfully completed		undergraduate			
	Courses		•			urs) and course language availa					
	Method o	of assessment				ith approx. 4 exercises per shee inutes). Method of assessment		cises to be completed correctly) or by the candidate.			
Application-oriente	ed Subject	t Physics (50 E	CTS cre	edits)							
Application-oriente	ed Subject	t Physics Com	pulsory	Courses: Basics (1	4 ECTS credits)						
11-ENNF1-062-m01	Introduct	tion to Physic	S Part 1	for students of Phy	sics Related Minor S	ubjects					
	ECTS 7	7 Duratio	on	1 semester	Method of grading	numerical grade	Modul level	undergraduate			
	Courses	,	V + Ü	V + Ü (no information on SWS (weekly contact hours) and course language available)							
	Method	of assessment	writte	en examination (ap	prox. 120 minutes)						
	Participa cation of	nts and allo- places	Only	Only as part of pool of general key skills (ASQ): 20 places. Places will be allocated by lot.							
11-ENNF2-062-m01	Introduct	tion to Physic	s Part 2	for students of Phy	ysics Related Minor S						
	ECTS 7	7 Duratio	on	1 semester	Method of grading	numerical grade	Modul level	undergraduate			
	Courses		V + Ü	(no information on	SWS (weekly contact	t hours) and course language av	vailable)				
	Method o	of assessment		en examination (ap	· · · · · · · · · · · · · · · · · · ·						
	Participa cation of	nts and allo- places	Only	as part of pool of g	eneral key skills (ASQ): 20 places. Places will be allo	cated by lot.				
Exactly one of the then Nebenfachs (P	wo modul hysics Pra	es 11-P-PA Phy actical Course	sikaliso or Stud	ches Praktikum Teil Ients of Physics-rela	ated Minors) must be	Course A) and 11-PNNF Physikal taken; students are not permitt		m für Studierende eines physikna- ı of these modules.			
11-PNNF-062-m01				students of Physic	s Related Minor Sub						
	ECTS 3	3 Duration		1 semester		(not) successfully completed		undergraduate			
	Courses					urs) and course language availa					
						ment and b) ungraded written e		prox. 90 minutes)			
	Participa cation of	nts and allo- places	Only	as part of pool of g	eneral key skills (ASQ): 15 places. Places will be alloo	cated by lot.				

11-P-PA-092-m01	Practical Cour	Practical Course A											
	ECTS 5	Duratio	1 1	semester	Method of grading	(not) successfully com	pleted Mod	lul level	undergraduate				
	Courses	`			gen und Fehlerrechn r (winter semester)	ung (Measurements and	Data Analysis	s): V (1 we	ekly contact hour) + Ü (1 weekly				
			Beispiele aus Mechanik, Wärmelehre und Elektrik (Examples from Mechanics, Thermodynamics and Electricity, BAM): P (2 weekly contact hours)										
	Method of ass	sessment	This mod	This module has the following assessment components 1. Topics covered in lectures and exercises: written examination (approx. 120 minutes)									
			2. Lab course: a) Preparing, performing and evaluating the experiments will be considered successfully completed if a Testat (exam) is passed. b) Talk (with discussion) to test the students' understanding of the physics-related contents of the course (approx. 30 minutes).										
			Successful completion of approx. 50% of practice work is a prerequisite for admission to assessment component 1. To pass assessment component 2, students must pass both elements a) and b). Students will be offered one opportunity to retake element a) and/or element b). Students must register for assessment components 1 and 2 online (details to be announced).										
			Students Beispiel	Students must attend Auswertung von Messungen und Fehlerrechnung (Measurements and Data Analysis) before attending Beispiele aus Mechanik, Wärmelehre und Elektrik (Examples from Mechanics, Thermodynamics and Electricity).									
	Defermed to in	1001		To pass this module, students must pass both assessment component 1 and assessment component 2. § 53 (1) 1. a) Physik Mechanik, Wärmelehre, Elektrizitätslehre, Optik, der speziellen Relativitätstheorie									
	Referred to in		§ 53 (1) 1. a) Physik mechanik, warmeterne, Elektrizitätsterne, Optik, der spezietten ketativitätstheorie § 53 (1) 1. c) Physik physikalische Grundpraktika § 77 (1) 1. d) Physik "physikalische Praktika"										
11-P-NFB-122-m01	Basic Practica		(Minor Studies)										
	ECTS 4	Duration	1 1	semester	Method of grading	(not) successfully comp	pleted Mod	lul level	undergraduate				
	Courses	,	P (no inf	ormation on SWS	(weekly contact ho	urs) and course language	e available)						
	Method of ass	sessment	a) Preparing, performing and evaluating (lab report) the experiments will be considered successfully completed if a Testat (exam) is passed. Experiments that were not successfully completed can be repeated once. And b) talk (with discussion; approx. 30 minutes) to test the candidate's understanding of the physics-related contents of the module component. Talks that were not successfully completed can be repeated once. Both components of the assessment have to be successfully completed.										
	Modules succ completed	essfully	11-P-PA										
	Additional Info	ormation	Addition	al information or	n module duration: 1	to 2 semesters.							
Application-oriente Out of several mod - 11-KM may neither - 11-STE may neither - 11-TQM may neither	ule component r be combined v r be combined	s covering with 11-QA with 11-ST	the same M nor wit nor with	e contents, stude th 11-FKP. 11-ED.		e each. This means that t	the following	combinati	ions are not permitted:				
11-ED-141-m01	Theoretical El	ectrodyna	mics										
	ECTS 8	Duratio	1 1	semester	Method of grading	numerical grade	Mod	lul level	undergraduate				
	Courses				` ,	t hours) and course langu	uage availabl	e)					
	Method of ass	sessment	written examination (approx. 120 minutes)										
				<u> </u>									

11-FKP-141-m01	Solid State Ph	ysics 1			,		,	-			
	ECTS 8	Duratio	1	1 semester	Method of grading	numerical grade	Modul level	undergraduate			
	Courses		V + Ü	(no information or	SWS (weekly contact	hours) and course lang	uage available)				
	Method of ass	essment	writte	n examination (ap	prox. 120 minutes)						
11-QAM-141-mo1	Quanta, Atoms	s, Molecu	les								
	ECTS 8	Duratio		1 semester	Method of grading		Modul level	undergraduate			
	Courses			·		hours) and course lang	uage available)	_			
	Method of ass		writte	vritten examination (approx. 120 minutes)							
11-QM-141-mo1	Quantum Mec	hanics									
	ECTS 8	Duratio		1 semester	Method of grading		Modul level	undergraduate			
	Courses			+ Ü (no information on SWS (weekly contact hours) and course language available)							
					prox. 120 minutes)						
11-ST-141-m01		_		Thermodynamics							
	ECTS 8	Duratio		1 semester	Method of grading		Modul level	undergraduate			
	Courses			·		hours) and course lang	uage available)				
			writte	n examination (ap	prox. 120 minutes)		,				
11-TM-141-m01		Theoretical Mechanics									
	ECTS 8 Duratio			1 semester	Method of grading		Modul level	undergraduate			
	Courses			V + Ü (no information on SWS (weekly contact hours) and course language available)							
	Method of ass	essment	writte	n examination (ap	prox. 120 minutes)						
Thesis (11 ECTS cro	edits)										
10-M-BAC-122-mo:	Thesis Compu	tational N	lathem	atics (Bachelor Th	nesis)						
	ECTS 11	Duratio	1	1 semester	Method of grading	numerical grade	Modul level	undergraduate			
	Courses		no coi	urses assigned							
	Method of ass	essment	written thesis Language of assessment: German, English if agreed upon with the examiner								
Subject-specific K	ey Skills (16 ECT	'S credits				<u> </u>					
10-M-COM-131-	Computationa	l Mathem	atics								
mo1	ECTS 4	Duratio	1	1 semester	Method of grading	(not) successfully com	pleted Modul level	undergraduate			
	Courses	,	V + Ü	(no information or	SWS (weekly contact	hours) and course lang	uage available)				
	Method of ass	essment			ogramming exercises (it: German, English	approx. 60 to 120 minu	tes)				
					20, 211311311						

A M DDC AND THE	Programming course for students of Mathematics and other subjects										
10-M-PRG-131-m01	Program	mming c	course for	rstuae	nts of Mathematics	and other subjects					
	ECTS	3	Duration	1	1 semester	Method of grading	(not) successfully completed	Modul level	undergraduate		
	Courses		P (no	P (no information on SWS (weekly contact hours) and course language available)							
	Method of assessment		project in the form of programming exercises (approx. 60 to 120 minutes) Language of assessment: German, English								
10-M-GBM-131-	Basic Notations and Methods of Mathematical Reasoning										
mo1	ECTS	2	Duration	1	1 semester	Method of grading	(not) successfully completed	Modul level	undergraduate		
	Courses		V + Ü	' + Ü (no information on SWS (weekly contact hours) and course language available)							
	Method of assessment			project assignment (approx. 60 to 120 minutes) Language of assessment: German, English							
10-M-ASM-131-	Reason	Reasoning and Writing in Mathematics									
mo1	ECTS	2	Duration	1	1 semester	Method of grading	(not) successfully completed	Modul level	undergraduate		
	Courses	 S		V + Ü (no information on SWS (weekly contact hours) and course language available)							
	Method of assessment			project assignment (approx. 60 to 120 minutes) Language of assessment: German, English							
10-M-SEM-131-m01	Semina	r Mathe	ematics					'			
	ECTS 5 Duratio		Duration	1	1 semester	Method of grading	(not) successfully completed	Modul level	undergraduate		
	Courses	 S		S (no	information on SWS	(weekly contact hour	s) and course language availa	ble)			
	Method of ass				talk (approx. 60 to 120 minutes)						