

Annex SFB

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

Responsible: Faculty of Mathematics and Computer Science

Responsible: Institute of Computer Science

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

modules in this SFB: ditable for bonus.

customary manner.

Information on Should there be the option to choose between several methods of assessment, the lecturer will agree with the module coordinator on the meassessment procedures: thod of assessment to be used in the current semester by two weeks after the start of the course at the latest and will communicate this in the

Should a module comprise more than one graded assessment, all assessments will be equally weighted, unless otherwise stated below.

 $Should the assessment comprise several individual \, assessments, \, successful \, completion \, of \, the \, module \, will \, require \, successful \, completion \, of \, all \, completion \, of \, compl$

individual assessments.

Examination regulations version: 2021

Examination regulations version: 2021

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

ASP02015

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

09-Jun-2021 (2021-69)

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 sp	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	sessm	ent								
	Only after su completion o		ıl if applic	if applicable							
	Other prereq	uisites	if applic	if applicable							
	Participants on of places		ocati- if applic	if applicable							
	Additional in	format	ion if applic	if applicable							
	Referred to in	1 LPO I	if applic	able (examination re	gulations for teachin	g-degree programmes)					

Compulsory Course	es (115 ECTS cr	edits)										
Computer Science	Computer Science and Sustainability (90 ECTS credits)											
10-I-GdP-172-m01	Fundamental	s of Progra	mming									
	ECTS 5	Duratio	n 1 semeste	Method of gradin	g numerical grade	Modul level	undergraduate					
	Courses		V (2) + Ü (2)	$V(2) + \ddot{U}(2)$								
	Method of as	sessment	If announced by to of one candidate date).	written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). creditable for bonus								
10-I-ADS-152-m01	Algorithms a	nd data stı	uctures									
	ECTS 10	Duratio	n 1 semeste	Method of gradin	g numerical grade	Modul level	undergraduate					
	Courses		V (4) + Ü (2)			^						
	Method of as	sessment	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 one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes pate). creditable for bonus									
	Referred to in	LPO I	§ 49 Nr. 1a § 69 Nr. 1a									
10-I-ST-152-m01	Software Tec	hnology										
	ECTS 10	Duratio	n 1 semeste	Method of gradin	g numerical grade	Modul level	undergraduate					
	Courses		V (4) + Ü (2)									
	Method of as	sessment	written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). creditable for bonus									
	Referred to in	LPO I	§ 49 Nr. 1b § 69 Nr. 1b									

10-I-SWP-152-m01	Practic	al cours	se in softv	vare								
	ECTS	10	Duration	n	1 semester	Method of grading (not) successfully c	ompleted	Modul level	undergraduate			
	Course	S		P (6)	-			•				
	Method	d of ass	essment		ical project (Comp 10 minutes per gro	letion of a larger software project in groups oup)	(approx. 3	oo hours per pe	erson) and final presentation (ap-			
	Module comple	es succe eted	essfully	10-l-P	o-l-PP, 10-l-ST							
	other p	rerequi	sites		n addition, the knowledge and skills acquired in module 10-I-ADS are required. Prior attendance of this module is therefore ighly recommended.							
	Referre	d to in l	_PO I	§ 69 I	Nr. 1d							
10-I-PP-191-m01	Practic	al Cours	se in Prog	rammi	ing							
	ECTS 10 Duratio			n		Method of grading (not) successfully c	ompleted	Modul level	undergraduate			
	Course	S		P (6)				•				
	Method of assessment			if ann	ctical examination (programming exercises, approx. 240 hours) and written examination (approx. 60 to 120 minutes). nnounced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candice).							
		rerequi		this b	ntended learning outcomes of the following module are required: 10-I-GdP. It is therefore strongly recommended to complete his before.							
10-l-RIÜ-191-m01	Computer Networks and Information Transmission											
	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade		Modul level	undergraduate			
	Course	S		V (4) ·	+ Ü (2)							
	Method of assessment			If ann of one date)	written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Creditable for bonus							
10-I-DB-152-m01	Data Ba	ases										
	ECTS	5	Duration	n	1 semester	Method of grading numerical grade		Modul level	undergraduate			
	Course	S		V (2) ·	+ Ü (2)							
	Method of assessment			If ann of one date). Langu	written 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 candidate). Language of assessment: German and/or English creditable for bonus							
	Referre	d to in l	PO I		Nr. 1b Nr. 1b							

04-Geo-GIS-152-	Geograp	hical Informa	tion Sy	stems (GIS)						
mo1	ECTS 5	Durat	ion	1 semester	Method of grading	numerical grade	Modul level	undergraduate		
	Courses		S (2) Mod	ule taught in: Germa	an and/or English					
	Method	of assessmer			ges, including 3 maps, t: German and/or Engl					
10-l-NIT-212-m01	Sustaina	bility and IT								
	ECTS 5	Durat	ion	1 semester	undergraduate					
	Courses			V (2) + Ü (2) Module taught in: German and/or English						
	Method	of assessmer	if an 20 m Mod	vritten examination (approx. 60-120 minutes) announced by the lecturer, the written examination can be replaced by an oral examination of one candidate each (approx. o minutes) or an oral examination in groups (groups of 2, approx. 15 minutes) Module taught in: German and/or English reditable for bonus						
10-I-UB-212-m01	Environn	nental Monit	oring	g						
	ECTS 5	Durat	ion	1 semester	Method of grading	numerical grade	Modul level	undergraduate		
	Courses		V (2)	+ Ü (2)						
	Method	of assessmer	if an	written examination (approx. 60-120 minutes) if announced by the lecturer, 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. 15 minutes) creditable for bonus						
10-I-NuB-212-mo1	Sustaina	bility Conce	ts and	s and Assessment						
	ECTS 5	Durat	ion	1 semester	Method of grading	numerical grade	Modul level	undergraduate		
	Courses		```	+ Ü (2)						
			if an 20 m cred	written examination (approx. 60-120 minutes) if announced by the lecturer, the written examination can be replaced by an oral examination of one candidate ear 20 minutes) or an oral examination in groups (groups of 2, approx. 15 minutes) creditable for bonus						
10-I-MuS-212-m01	Modeling	g and Simula	tion							
	ECTS 5	Durat		1 semester	Method of grading	numerical grade	Modul level	undergraduate		
	Courses		` '	+ Ü (2)						
	Method of assessment		if an	written examination (approx. 60-120 minutes) if announced by the lecturer, 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. 15 minutes) creditable for bonus						

10-I-EnAE-212-mo1	Energy-Aware Engineering											
	ECTS	5	Duration		1 semester	Method of grading	numerical grade	Modul level	undergraduate			
	Course	S		V (2) +	- Ü (2)	,	-		-			
	Method of assessment			if ann 20 mi	written examination (approx. 60-120 minutes) f announced by the lecturer, the written examination can be replaced by an oral examination of one candidate each (a 20 minutes) or an oral examination in groups (groups of 2, approx. 15 minutes) creditable for bonus							
Mathematics (25 E	CTS cred	lits)										
10-M-INF1-152-m01	Mathe	matics 1	for stude	nts in	Computer Science							
	ECTS	10	Duratio	า	1 semester	Method of grading	numerical grade	Modul level	undergraduate			
	Courses			V (4) + Modu	- Ü (2) le taught in: Ü: Ger	man or English						
	Method of assessment			nutes) Langu	a) written examination (approx. 90 to 180 minutes, usually chosen) or b) oral examination of one candidate each (15 to 30 minutes) or c) oral examination in groups (groups of 2, 10 to 15 minutes per candidate) Language of assessment: German and/or English creditable for bonus							
10-M-INF2-152-	Mathe	matics :	2 for stude	ents in	Computer Science							
mo1	ECTS	10	Duration	1	1 semester	Method of grading	numerical grade	Modul level	undergraduate			
	Course	S		V (4) + Modu	- Ü (2) le taught in: Ü: Ger	man or English						
	Method of assessment			nutes) Langu	a) written examination (approx. 90 to 180 minutes, usually chosen) or b) oral examination of one candidate each (15 t nutes) or c) oral examination in groups (groups of 2, 10 to 15 minutes per candidate) Language of assessment: German and/or English creditable for bonus							
10-l-Gu-	Graphs	and Di	screte Op	timizat	tion			,				
d0-212-m01	ECTS	5	Duration		1 semester	Method of grading	numerical grade	Modul level	undergraduate			
	Course	S		V (2) +	- Ü (2)							
	Method of assessment			written examination (approx. 60-120 minutes) if announced by the lecturer, 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. 15 minutes) Language of assessment: German and/or English creditable for bonus					n of one candidate each (approx.			

Compulsory Elective	es (35 ECTS	credits)								
Interdisciplinary p	rinciples of	sustainability	(5-10	ECTS credits)						
04-Geo-EGI-212-	Introduction	on to Geograp	hy for	Computer Scientis	ts					
mo1	ECTS 5	Duratio	n	1 semester	Method of grading numerical grade	Modul level	undergraduate			
	Courses		V (3) Module taught in: German and/or English							
	Method of	assessment	a) written examination (approx. 45 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) term paper (approx. 20 pages) Language of assessment: German and/or English							
07-GBio-212-m01	Basics in E	Biology				,				
	ECTS 5	Duratio	n	1 semester	Method of grading numerical grade	Modul level	undergraduate			
	Courses		V (4)		·					
	Method of	assessment	writte	n examination (ap	prox. 60 minutes)					
Sustainable comp	ıter science	(5-30 ECTS c	redits)							
Subfield computer	science (5-	30 ECTS credi	ts)							
10-I-SEC-191-m01	IT Security									
	ECTS 5 Duration		n	1 semester	Method of grading numerical grade	Modul level	undergraduate			
	Courses		V (2) + Modu	+ Ü (2) le taught in: Germa	an and/or English					
	Method of	assessment	If annoted of one date).	written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus						
10-I-MCS-191-m01	Introduction	on into Huma	n-Comp	outer Interaction		'				
	ECTS 5	Duratio	n	1 semester	Method of grading numerical grade	Modul level	undergraduate			
	Courses		V (3) +	+ Ü (1)						
	Method of	assessment	written examination (approx. 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examinat of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per car date). Language of assessment: German and/or English creditable for bonus							

	D											
10-I-HWP-152-m01	Practic	al cours	e in hard	ware								
	ECTS	10	Duration	1	1 semester	Method of grading (n	ot) successfully completed	Modul level	undergraduate			
	Course	S		P (6)	'(6)							
	Method	of ass	essment	portfo	portfolio: completion of approx. 3 to 10 project assignments (approx. 250 hours total) and presentation of results (approx. 10							
				minut	minutes per project)							
	Referre	d to in L	PO I	§ 22 l	II Nr. 3b							
10-l-lCG-152-m01	Interactive Computer Graphics											
	ECTS	5	Duration	า	1 semester	Method of grading nu	ımerical grade	Modul level	undergraduate			
	Course	S		V (2)	+ Ü (2)	'						
	Method of assessment			If ann of one date) Langu	ritten examination (approx. 60 to 120 minutes). announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examinat f one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per can ate). anguage of assessment: German and/or English reditable for bonus							
	Referre	d to in L	PO I	§ 22 l	l Nr. 3b							
10-l-RAL-152-m01	Digital computer systems											
	ECTS 10 Duration			า	1 semester	Method of grading nu	ımerical grade	Modul level	undergraduate			
	Course	S		V (4)	+ Ü (2)	<u>. </u>						
	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 exam of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per date). creditable for bonus								
10-I-WBS-152-m01	Knowle	dge-ba	sed Syste	ms	,			,				
	ECTS	5	Duration	า	1 semester	Method of grading nu	ımerical grade	Modul level	undergraduate			
	Course	S		V (2)	+ Ü (2)							
	Method of assessment			written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be 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								
	Referre	d to in L	PO I	§ 22 l	l Nr. 3b							

10-l-DM-152-m01	Data Mining											
	ECTS	5	Duration	n	1 semester	Method of grading	numerical grade	Modul level	undergraduate			
	Course	es		V (2) +	+ Ü (2)				-			
	Metho	d of ass	essment		written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus							
				of one date). Langu								
	Referre	ed to in	LPO I	§ 22 l	Nr. 3b							
10-I-APR-172-m01	Advan	ced Pro	gramming									
	ECTS	5	Duration	<u> </u>	1 semester	Method of grading	numerical grade	Modul level	undergraduate			
	Course	es		V (2) +	+ Ü (2)				•			
	Metho	d of ass	essment	If ann of one date).	written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus							
10-I-KT-191-m01	Computational Complexity											
	ECTS 5 Duratio			1	1 semester	Method of grading	numerical grade	Modul level	undergraduate			
	Course	es.		V (2) +	+ Ü (2)							
	Method of assessment			If ann of one date). Asses	ounced by the lec e candidate each (sment offered: In	turer at the beginning	oups of 2 candidates	replaced by an oral examination s (approx. 15 minutes per candienester				
10-l-KD-191-m01	Crypto	graphy	and Data	Securi	ty	,						
	ECTS	5	Duratio	1	1 semester	Method of grading	numerical grade	Modul level	undergraduate			
	Course	es	·	V (2) +	+ Ü (2)				-			
<u></u>	Metho	d of ass	essment	written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Assessment offered: In the semester in which the course is offered and in the subsequent semester Language of assessment: German and/or English creditable for bonus								

10-I-AR-152-m01	Automation and Control Technology											
	ECTS 8 Duratio	n 1 semester	Method of grading numerical grade	Modul level	undergraduate							
	Courses	V (4) + Ü (2)	$(4) + \ddot{U}(2)$									
	Method of assessment		written examination (approx. 60 to 120 minutes).									
		If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English										
	creditable for bonus											
10-I-BS-191-m01	Operating Systems											
	ECTS 5 Duratio		Method of grading numerical grade	Modul level	undergraduate							
	Courses	V (2) + Ü (2) Module taught in: Engli	sh									
	Method of assessment	If announced by the lec	ritten examination (approx. 60 to 120 minutes). announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination									
		of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).										
			Language of assessment: German and/or English									
		creditable for bonus										
10-I-RAK-152-m01	Computer Architecture CCTC											
	ECTS 5 Duratio		Method of grading numerical grade	Modul level	undergraduate							
	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										
			approx. 20 minutes) or an oral examination									
		date).		5 1								
		Language of assessmer creditable for bonus	nt: German and/or English									
	Referred to in LPO I	§ 22 II Nr. 3b		,								
	Referred to in LFO I	§ 69 Nr. 1c: Rechnerar	chitektur									
10-I-RK-212-m01	Control Principles of M	odern Communication Sy	stems									
	ECTS 5 Duratio	n 1 semester	Method of grading numerical grade	Modul level	undergraduate							
	Courses	V (2) + Ü (2)	·	·								
	Method of assessment	20 minutes) or an oral e	turer, the written examination can be replac examination in groups (groups of 2, approx.		n of one candidate each (approx.							
		Language of assessment: German and/or English creditable for bonus										

10-l-Gl-152-m01	Selected Basics of Computer Science												
	ECTS 5	Duratio	1 1 S	emester	Method of grading	numerical grade	Modul level	undergraduate					
	Courses		V (4) + Ü ((2)									
	Method of ass	essment	If announ of one caldate). Language	written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus									
10-l-LOG-152-m01	Logic for infor	matics											
	ECTS 5	Duratio		emester	Method of grading	numerical grade	Modul level	undergraduate					
	Courses Method of ass	,	V (2) + Ü (prox. 60 to 120 minute								
			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										
	Referred to in I	LPO I	§ 22 II Nr.	3b			1						
10-I-TIV-152-m01	Theoretical Informatics												
	ECTS 5	Duratio	1 1 5	emester	Method of grading	numerical grade	Modul level	undergraduate					
	Courses	,	V (4)										
	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 candidate).										
	Referred to in I	LPO I	§ 49 Nr. 1a § 69 Nr. 1a										
10-I-TIT-191-m01	Tutorial Theore	etical Info	rmatics										
	ECTS 5	Duratio	1 1 S	emester	Method of grading	(not) successfully complet	ted Modul level	undergraduate					
	Courses		Ü (2)				•						
	Method of ass	essment	a) exercises (consisting in completion of approx. 11 home work exercise sheets, presentation of own solutions in the exercise groups as well as approx. 5 short assessments written in the exercise group) or b) Written examination (approx. 180 to 2 nutes) Die Prüfungsart ist vom Prüfling festzulegen										

10-I-SEM1-152-m01	Semina	ar 1									
	ECTS	5	Duration	1	1 semester	Method of grading	numerical grade	Modul level	undergraduate		
	Course	s		S (2)				•			
	Method	d of ass	essment	pic fro	written elaboration (approx. 10 to 15 pages) and presentation (approx. 30 to 45 minutes) with subsequent discussion on a topic from the field of computer science Language of assessment: German and/or English						
	Referred to in LPO I § 22 II Nr. 3b										
Subfield Aerospace	Compu	ter Scie	nce (o-25	ECTS	credits)						
10-I-LFS-172-m01	Introdu	ction to	Aviation	Syste	ms						
	ECTS 5 Duratio			<u> </u>	1 semester	Method of grading	numerical grade	Modul level	undergraduate		
	Courses			V (2)	+ Ü (1)	•	•		•		
	Method of assessment			If ann	ritten examination (approx. 60 to 120 minutes) announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examinatior fone candidate each (approx. 30 minutes). reditable for bonus						
10-I-RFS-172-m01	Introduction to Space Systems										
	ECTS 5 Duratio		1	1 semester	Method of grading	numerical grade	Modul level	undergraduate			
	Courses		V (2)	+ Ü (1)	•	•	·	•			
	Method of assessment			If ann	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 exar of one candidate each (approx. 30 minutes). creditable for bonus						
10-I-MEC-172-m01	Fundan	nentals	and Prog	rammi	ng of Avionics			,			
	ECTS	10	Duratio	า	1 semester	Method of grading	numerical grade	Modul level	undergraduate		
	Course	S		V (4)	+ Ü (2) + P (2)				_		
	Method	d of ass	essment	each)	written examination (approx. 120 minutes) and practical examination (approx. 6 programming exercises approx. 4 hours each), weighted 1:1 creditable for bonus						
10-InNa-LR-		ace Lab	oratory								
LA-212-m01	ECTS	10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	undergraduate		
	Course	_		V(2) + P(2)							
	Method of assessment			Solving of approx. 6 practical assignments (approx. 4 hours each) Assessment offered: Once a year, summer semester							

Subfield Mathemat	tics (0-25	ECTS o	redits)								
10-M-DI-	Introduc	ction to	Discrete	Mathe	ematics for students	of other subjects					
Maf-152-mo1	ECTS	10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	undergraduate		
	Courses		,	V (4) -	+ Ü (2)	•		•	,		
	Method	of asse	essment	nutes Langu	a) written examination (approx. 90 to 180 minutes, usually chosen) or b) oral examination of one candidate each (15 to 30 minutes) or c) oral examination in groups (groups of 2, 10 to 15 minutes per candidate) Language of assessment: German and/or English creditable for bonus						
10-M-NUM1af-152-	Numerio	al Mat	hematics	1 for s	tudents of other su	bjects		'			
mo1	ECTS	10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	undergraduate		
M STO	Courses			V (4) -	⊦ Ü (2)	•		•			
			essment	nutes Langu credit	written examination (approx. 90 to 180 minutes, usually chosen) or b) oral examination of one candidate each (15 to 30 n tes) or c) oral examination in groups (groups of 2, 10 to 15 minutes per candidate) nguage of assessment: German and/or English editable for bonus						
10-M-STO-1af-152-					ther subjects						
mo1	ECTS	10	Duratio	,	1 semester	Method of grading	numerical grade	Modul level	undergraduate		
	Courses			V (4) -							
	Method	of asse	essment	nutes Langu	a) written examination (approx. 90 to 180 minutes, usually chosen) or b) oral examination of one candidate each (15 to 30 m nutes) or c) oral examination in groups (groups of 2, 10 to 15 minutes per candidate) Language of assessment: German and/or English creditable for bonus						
10-M-DGLaf-152-	Ordinary Differential Equations for students of other subjects										
mo1	ECTS	10	Duratio	n 1 semester		Method of grading	numerical grade	Modul level	undergraduate		
	Courses			V (4) -	+ Ü (2)						
	Method	of asse	essment	nutes Langu	a) written examination (approx. 90 to 180 minutes, usually chosen) or b) oral examination of one candidate each (15 to 30 nutes) or c) oral examination in groups (groups of 2, 10 to 15 minutes per candidate) Language of assessment: German and/or English creditable for bonus						
10-M-OR-	Operation	ons Re	search fo	r stude	nts of other subject	ts		'			
Saf-152-mo1	ECTS	10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	undergraduate		
	Courses		•	V (4) -	+ Ü (2)	1		•	•		
				nutes Asses Langu) or c) oral examinat sment offered: In th	tion in groups (group	s of 2, 10 to 15 minutes per ca the course is offered and in t	ındidate)	f one candidate each (15 to 30 mi- emester		

Computer science	Computer science for sustainability (o or 20 ECTS credits)												
Geography with a f	ocus on climate	e (o or 20	ECTS c	redits)									
04-Geo-SPG1-152-	Special Proble	ms of Ph	ysical (l Geography 1 (Earth System: Man and Environment)									
mo1	ECTS 5	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	undergraduate					
	Courses		V (2) Modu	V (2) Module taught in: German and/or English									
	Method of ass	essment	written examination (approx. 45 minutes) Language of assessment: German and/or English										
	Referred to in LPO I		§ 66 I	§ 66 Nr. 2									
04-Geo-MPG1-152-	Methods of Ph	nysical Ge	ograpl	ny 1			,						
mo1	ECTS 5	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	undergraduate					
	Courses		Ü (2) Modu	le taught in: Germar	and/or English		,						
	Method of ass	essment	a) written examination (approx. 45 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) presentation (approx. 30 minutes) or d) portfolio (approx. 20 pages, including 3 maps, 2 logs) or e) term paper (approx. 20 pages) Language of assessment: German and/or English										
	Referred to in	LPO I	§ 66 I	Nr. 2			,						
04-Geo-PPG-152-	Applied physical geography												
mo1	ECTS 10 Duratio		n	2 semester	Method of grading	numerical grade	Modul level	undergraduate					
	Courses		S (4) Module taught in: German and/or English										
	Method of ass	essment	a) project (approx. 30 pages) or b) presentation (approx. 30 minutes) or c) term paper (approx. 20 pages) Assessment offered: Once a year, summer semester Language of assessment: German and/or English										
	Participants and cation of place		max. 20 places. Should the number of applications exceed the number of available places, places will be allocated according to the number of subject semesters with the individual student's progression through their degree programme being taken into account. Among applicants with the same number of subject semesters, places will be allocated by lot. A waiting list will be maintained and places re-allocated by lot as they become available.										
10-I-AGGN-211-	Selected Basic	cs of Sust	ainabil	ity in Geography			'						
mo1	ECTS 5	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	undergraduate					
	Courses		V (2) + Ü (2) Course type: alternatively S (2)										
	Method of ass	essment	subse if ann 20 mi	a) written examination (approx. 60-120 minutes) or b) term paper (approx. 10-15 pages) and presentation (30-45 minutes) with subsequent discussion f announced by the lecturer, 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. 15 minutes) anguage of assessment: German and/or English									

Geography with a f	ocus on	remote	sensing	(o or 2	ECTS credits)							
04-Geo-FER-	Introdu	ction to	Geograp	hical I	Remote Sensing							
NE-152-m01	ECTS	5	Duratio	1	1 semester	Method of grading numerical grade	Modul level	undergraduate				
	Courses			V (2) + T (2) Module taught in: German and/or English								
	Method	of asso	essment	written examination (approx. 45 minutes) Language of assessment: German and/or English creditable for bonus								
	Referre	d to in L	PO I	§ 66 I	§ 66 l Nr. 2							
04-Geo-FER-	Applica	tions o	f Remote	Sensir	g in Geography							
NA-152-m01	ECTS 5 Duration			1	1 semester	Method of grading numerical grade	Modul level	undergraduate				
	Courses	5		V (2) Modu	+ T (2) le taught in: Germa	n and/or English						
	Method	l of asso	essment	written examination (approx. 45 minutes) Language of assessment: German and/or English creditable for bonus								
04-Geo-MFD-152-	Methods for Analysing Remote Sensing Data											
mo1	ECTS	5	Duratio	<u> </u>	1 semester	Method of grading numerical grade	Modul level	undergraduate				
	Courses			S (2) + T (2) Module taught in: German and/or English								
	Method of assessment			presentation (approx. 45 minutes) with related term paper (approx. 15 pages) Assessment offered: Once a year, winter semester Language of assessment: German and/or English								
	Particip cation o			max. 20 places. Should the number of applications exceed the number of available places, places will be allocated according to the number of subject semesters with the individual student's progression through their degree programme being taken into account. Among applicants with the same number of subject semesters, places will be allocated by lot. A waiting list will be maintained and places re-allocated by lot as they become available.								
04-Geo-MPG1-152-	Method	ls of Ph	ysical Ge	ograpl	ny 1							
mo1	ECTS	5	Duration	า	1 semester	Method of grading numerical grade	Modul level	undergraduate				
	Courses	5		Ü (2) Module taught in: German and/or English								
	Method of assessment			a) written examination (approx. 45 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) presentation (approx. 30 minutes) or d) portfolio (approx. 20 pages, including 3 maps, 2 logs) or e) term paper (approx. 20 pages) Language of assessment: German and/or English								
	Referre	d to in L	.PO I	§ 66 l	Nr. 2							

10-I-AGGN-211-	Selected Basics of Sustainability in Geography										
mo1	ECTS	5	Duration	ı	1 semester	Method of grading	numerical grade	Modul level	undergraduate		
	Courses				V (2) + Ü (2) Course type: alternatively S (2)						
	Method of assessment			a) written examination (approx. 60-120 minutes) or b) term paper (approx. 10-15 pages) and presentation (30-45 minutes) with subsequent discussion if announced by the lecturer, 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. 15 minutes) Language of assessment: German and/or English							
Biology (o or 20 EC	TS credi	ts)									
07-3A3OE-	Plant and Animal Ecology										
KO-152-mo1	ECTS	6	Duration	า	1 semester	Method of grading	numerical grade	Modul level	undergraduate		
	Courses			V (2) + Ü (2)							
	Method of assessment			written examination (approx. 90 minutes) creditable for bonus							
	Referre	d to in L	.PO I	§ 61 Nr. 4							

Computational Biology - from Genom to Ecosystem												
ECTS	5	Duration	n	1 semester	Method of grading	numerical grade	Modul level	undergraduate				
Course	S		S (2)									
Method	d of ass	essment		a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10 to 20 pages) or c) practical examination (on average								
			20 pla Stude Shoul chelo locate degre cation availa quota form i conce least A wai Selec ments rage g cludir lows: dits (i applied ding t king o Selec	election 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) (exluding 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 pplicants' 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 raning or otherwise by lot. election process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50 % of places): total								
			the sa	ame number of ECTS	Scredits achieved, pl	aces will be allocated by lot.	Quota 2 (25 % of p	olaces): number of subject seme-				
						cants with the same number	of subject semest	ers, places will be allocated by				
			Shou	ld the module be us	sed only in the Bache	lor's degree subject Biologie	(Biology) with 180	ECTS credits, places will be allo-				
			cated according to the selection process of group 1.									
		Duration			Method of grading	numerical grade	Modul level	undergraduate				
Method of assessment			writte credit	written examination (approx. 60 minutes) creditable for bonus								
	ECTS Course Method Particip cation Mather ECTS Course	ECTS 5 Courses Method of ass Participants at cation of place ECTS 4 Courses	ECTS 5 Duration Courses Method of assessment Participants and allocation of places ECTS 4 Duration Courses	ECTS 5 Duration Courses S (2) Method of assessment a) wri approsent study Assess Langu Participants and allocation of places Participants and allocation of places Participants and allocation of places Study Should chelolocate degree cation availate quotation availate quotation selection availate selection availate of the season of	Section 1 semester Section Semester Section Semester Section Students will be informed Assessment Semester Sem	ECTS 5 Duration 1 semester Method of grading	ECTS 5	Solution 1 semester Method of grading numerical grade Modul level				

07-S1-IP1-152-m01	Interdi	Interdisciplinary Project I											
	ECTS	5	Duration		1 semester	Method of grading	numerical grade	Modul level	undergraduate				
	Course	S		R (5) Modu	R (5) Module taught in: German and/or English								
	Method	d of asse		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 will vary 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. creditable for bonus									
	other p	rerequis	ites	Please consult with course advisory service in advance.									

07-4S1E-	Evolutionary Ecology												
VO-171-mo1	ECTS	5	Duration	1 semester	Method of grading numerical grade	Modul level	undergraduate						
	Course	S	Ü (4)	+ V (1)									
			each senta ding Stude Lang credi	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 will vary 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. Language of assessment: German and/or English creditable for bonus									
	Participants and allocation of places		Stude Shou cheld locat degree cation avails quote form concelleast A wai Select ment rage cludi lows: dits (appli ding king select numbers sters lot. O	20 places. Should the number of applications exceed the number of available places, places will be allocated as follows: Students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits will be given preferential consideration. 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 place 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 subject Scomputational 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 the same 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 Chemis (Chemistry), Physik (Physics), Makhematik (Mathematics)) at the time of applicantor. This will be done as									

07-4S1NAT-171-	Ecology and Nature Conservation												
mo1	ECTS	5	Duration		1 semester	Method of grading	numerical grade	Modul level	undergraduate				
	Course	·S	į	Ü (4)	+ S (1)								
			6 9 0 9 1	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 will vary 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. Language of assessment: German and/or English creditable for bonus									
		oants ar		Stude Should chelo located degree cation availated form a concern located form a concern lo	ents of the Bachelor Id the module be us it's degree subject Beed to students of the end to the	Is degree subject Bio ded in other subjects, siologie (Biology) with the Bachelor's degree stational Mathematics stiology (as well as posticed the number of a within one module courses of one module ed in the same procesomponent of the respitationed and places real (95%): Places will be ranked, firstly, a population of the respitation	there will be two quotas: 95% in 180 ECTS credits and 5% of subject Biologie (Biology) with and Mathematik (Mathematic tentially to students of other 'applications, the remaining plomponent, several courses with a component. In this case, placed are in this procedure, applicative module will be given perallocated as they become avorimarily be allocated accordinated according to the number eir studies or of all module components (Mathematics)) according to their average graced and the sum of these with the same ranking, places allocated according to the foodules/module components access will be allocated by lot. Gicants with the same number lor's degree subject Biologie (Bor's degree subject Biologie)	credits will be give of places (a minimum of 60 ECTS credits is), each with 180 importing' subject laces will be allocated or feerential considerations and the time of applicant the time of application of ECTS credits the at the time of application of the Faculty of ECTS credits achies two rankings, and will be allocated of the Faculty of EQuota 2 (25 % of of subject semested).	ven preferential consideration. e allocated to students of the Bam of one place in total) will be all and to students of the Bachelor's ECTS credits, as part of the applicats). Should the number of places ated to applicants from the other mber of places, there will be a units of a module component that are y have successfully completed at				

10-I-AGBN-211-	Selected Basics of Sustainability in Biology												
mo1	ECTS	5	Duration	ı	1 semester	Method of gradir	ng numerical grade	Modul level	undergraduate				
	Courses	5	-		$V(2) + \ddot{U}(2)$ Course type: alternatively S (2)								
	Method	l of asse	essment	a) written examination (approx. 45 to 60 minutes) or b) log (approx. 10-20 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) f) practical examination (on average approx. 2 hours; time to complete will vary 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 Language of assessment: German and/or English									
Key Skills Area (20	ECTS cre	edits)											
General Key Skills In addition to the m				dents r	nay also take mo	odules offered by JMU	as part of the pool of general tra	ansferable skills	(ASQ).				
General Key Skills	(subject-	-specifi	c)										
10-I-TUT1-152-m01	Tutor ac	ctivity 1											
	ECTS 2 Duratio		ı		Method of gradin	ng (not) successfully completed	d Modul level	undergraduate					
	Courses			T (2)									
	Method of assessment			Wrap-	up report on tuto	oring activities (5 to 10	pages)						
	Referred to in LPO I			§ 22 II Nr. 2 f) § 22 II Nr. 3 f)									
10-I-TUT2-152-m01	Tutor activity 2												
	ECTS	2	Duration	Method of grading (not) successfully completed Modul level undergraduate				undergraduate					
	Courses	_		T (2)									
				Wrap-up report on tutoring activities (5 to 10 pages)									
	Referre	d to in L	.PO I	§ 22 Nr. 2 f) § 22 Nr. 3 f)									
10-I-TUT3-152-m01	Tutor ac	ctivity 3	3										
	ECTS	2	Duration	า		Method of gradin	ng (not) successfully completed	d Modul level	undergraduate				
	Courses	S		T (2)									
	Method	l of asse	essment	Wrap-	up report on tuto	oring activities (5 to 10	pages)						
Subject-specific Ke	y Skills ((15 ECT:	S credits)										
10-I-SEM-In-	Semina	r - Sele	cted Topi	cs in C	omputer Science	e and Sustainability							
Na-212-m01	ECTS	5	Duration	ı	1 semester	Method of gradir	ng numerical grade	Modul level	undergraduate				
	Courses	S		S (2)									
						o-15 pages) and prese ent: German and/or E	ntation (approx. 30-45 min.) wit nglish	th subsequent di	scussion				

10-l-luE-212-m01	Compu	ter Scie	nce and E	thics							
	ECTS	5	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	undergraduate		
	Courses			V/S (2	V/S (2)						
	Method of assessment			a) written examination (approx. 60-120 minutes) or b) term paper (approx. 10-15 pages) with subsequent discussion Language of assessment: German and/or English							
	Referred to in LPO I			§ 22 l	Nr. 3b						
10-InNa-PV-212-	Project	Project Presentation									
mo1	ECTS	5	Duration	n	1 semester	Method of grading	numerical grade	Modul level	undergraduate		
	Course	S		S (5)							
	Method of assessment			presentation of a project developed by the candidate analogous to a presentation for laypersons with a knowledge of computer science at a trade fair as well as discussion (approx. 10 to 15 minutes total) Language of assessment: German and/or English							
Thesis (10 ECTS cre	edits)										
10-InNa-BA-212-	Bachelor's Thesis Computer Science and Sustainability										
mo1	ECTS	10	Duration	n	1 semester	Method of grading	numerical grade	Modul level	undergraduate		
	Course	S		No courses assigned to module							
	Method of assessment				Bachelor's thesis (approx. 50 to 100 pages) Language of assessment: German and/or English						
	Additio	Additional Information			Time to complete: 10 weeks.						