



Annex SFB

Studienfachbeschreibung (subject description, SFB) for the subject Artificial Intelligence and Data Science 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 Examination regulations version: 2023 Examination regulations version: 2023

Abbreviations used:	Course types: \mathbf{E} = field trip, \mathbf{K} = colloquium, \mathbf{O} = conversatorium, \mathbf{P} = placement/lab course, \mathbf{R} = project, \mathbf{S} = seminar, \mathbf{T} = tutorial, $\mathbf{\ddot{U}}$ = exercise, \mathbf{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 me- thod of assessment to be used in the current semester by two weeks after the start of the course at the latest and will communicate this in the customary manner.
	Should a module comprise more than one graded assessment, all assessments will be equally weighted, unless otherwise stated below.
	Should the assessment comprise several individual assessments, successful completion of the module will require successful completion of all individual assessments.

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

ASPO2015

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

19-Apr-2023 (2023-40)

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:

	Module title										
	ECTS	C	Juration	(in semesters)	Method of grading		Module level				
	Courses		To be spe	ecified in the form X	(y) with course type >	A abbreviated as specified abore	ove and number of we	ekly contact hours y			
	Method of as	ssessme	nt								
	Only after su completion of		if applica	if applicable							
	Other prereq	uisites	if applica	if applicable							
	Participants and allocati- on of places		cati- if applica	if applicable							
	Additional in	formatic	n if applica	if applicable							
	Referred to in	n LPO I	if applica	ble (examination re	gulations for teachin	g-degree programmes)					

Compulsory Cours											
Artificial Intelliger	_										
10-I-AKIDS1-222-	_		and Data		1						
m01	ECTS 10 Duration			1 semester	Method of grading	numerical grade	Modul level	undergraduate			
					+ Ü (2)						
	Method of assessment			lf anr of on 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 candi- date). creditable for bonus						
10-I-AKIDS2-222-	Algorit	hms, Al	and Data	Scien	ce 2						
m01	ECTS	10	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	undergraduate		
	Course	S	_	V (4)	+ Ü (2)	•		•			
				date)	reditable for bonus						
10-I-PP-KIDS-222-	Practic	al Cour	se in Prog	ramming for Artificial Intelligence and Data Science							
m01	ECTS 10 Duratio		n		Method of grading	(not) successfully complete	d Modul level	undergraduate			
	Course	S	_	P (6)							
	Method of assessment			practical examination (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 may be replaced by an oral examinat of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per can date). Language of assessment: German and/or English							
	other prerequisites			Intended learning outcomes of the following module are required: 10-I-GdP. It is therefore strongly recommended to complete this before.							
10-I-KIDS-	Artificia	al Intell	igence ar	d Data	Science Lab 1						
Lab1-232-m01	ECTS 10 Duratio		Duratio	1	1 semester	Method of grading	numerical grade	Modul level	undergraduate		
	Course	S		R (6) Modu	R (6) Module taught in: German or English						
	Methoo	l of ass	essment	presentation of project results (30 to 45 minutes) Language of assessment: German and/or English creditable for bonus							

10-I-KIDS-	Artifici	al Intell	igence an	d Data	Science Lab 2						
Lab2-232-m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade	Modul level	undergraduate			
	Course	es		R (6) Modu	R (6) Module taught in: German and/or English						
	Metho	d of ass	essment	presentation of project results (30 to 45 minutes) Language of assessment: German and/or English creditable for bonus							
10-I-KIDS-	Artifici	al Intell	igence an	d Data	Science Lab 3						
Lab3-232-m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade	Modul level	undergraduate			
	Course	es		R (6) Modu	le taught in: Germa	n or English					
	Metho	d of ass	essment	Langu	presentation of project results (30 to 45 minutes) Language of assessment: German and/or English creditable for bonus						
10-I-DSML-222-	Data S	cience 8	Machine	e Learn	ing						
m01	ECTS 5 Duratio				1 semester	Method of grading numerical grade	Modul level	undergraduate			
	Course	es		V (2) + Ü (2)							
	Method of assessment			lf ann of one date).	ounced by the lectu e candidate each (a	rox. 60 to 120 minutes). Irer at the beginning of the course, the written exam pprox. 20 minutes) or an oral examination in groups					
10-I-DL-222-m01	Deep L	earning									
	ECTS	5	Duratio		1 semester	Method of grading numerical grade	Modul level	undergraduate			
	Course			V (2) + Ü (2)							
			essment	written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candi- date). creditable for bonus							
	Referre	ed to in l	104	8221	I Nr. 3 b)						

Computer Science	(20 ECTS	credite	s)									
10-I-GdP-172-m01	Fundam	entals	of Progra	mming	g							
	ECTS 5 Duration			า	1 semester	Method of grading	numerical grade	N	lodul level	undergraduate		
	Courses	5		V (2) ·	+ Ü (2)							
	Method	of ass	essment	written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candi- date). creditable for bonus								
	Referred			§ 69 I	Nr. 1 b) Nr. 1 b)							
10-I-MCS-191-m01	Introduc	ction ir	nto Humai	וCom	puter Interaction							
	ECTS	5	Duration	า	1 semester	Method of grading	numerical grade	N	lodul level	undergraduate		
	Courses	;	•	V (3) ·	+ Ü (1)							
			essment	of one date). Langu	announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination f one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candi-							
10-I-DB-152-m01	Databases											
	ECTS	5	Duration	1	1 semester	Method of grading	numerical grade	N	Iodul level	undergraduate		
	Courses	;		V (2) ·	V (2) + Ü (2)							
	Method of assessment		essment	lf ann of one date) Langu	ounced by the lecture e candidate each (a		of the course, the w r an oral examination			replaced by an oral examination 5 (approx. 15 minutes per candi-		
	Referred	d to in I	LPO I	§ 49 Nr. 1 b) § 69 Nr. 1 b)								
10-I-ST-KIDS-222-	Softwar	e Tech	nology fo	r Artifi	cial Intelligence an	d Data Science						
m01	ECTS	5	Duration	1	1 semester	Method of grading	numerical grade	N	Iodul level	undergraduate		
	Courses	;		V (2) ·	+ Ü (2)	•						
	Method	ofass	essment	lf ann of one date).	ounced by the lecture candidate each (a		of the course, the w			replaced by an oral examination s (approx. 15 minutes per candi-		

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Mathematics (25 B	CTS cred	lits)									
10-M-KIDS1-222- mo1	Mather	matics f	or Artifici	al Inte	lligence and Data	Science 1					
	ECTS 10 Duratio			n	1 semester	Method of grading numerical grad	de	Modul level	undergraduate		
	Course	s		V (5) -	+ Ü (2)	· ·		•	- *		
	Methoo	d of asso	essment	written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candi- date). Language of assessment: German and/or English creditable for bonus							
10-M-KIDS2-222-	Mather	matics f	or Artifici	al Inte	lligence and Data	Science 2					
m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical grad	de	Modul level	undergraduate		
	Course	s		V (5) -	V (5) + Ü (2)						
	Methoo	d of asso	essment	If ann of one date). Langu	written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examina of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per ca date). Language of assessment: German and/or English creditable for bonus						
10-M-KIDS3-222-	Mather	matics f	or Artifici	al Inte	lligence and Data	Science 3					
m01	ECTS	5	Duratio	n	1 semester	Method of grading numerical grad	de	Modul level	undergraduate		
	Course	s		V (2) + Ü (1)							
	Methoo	d of asso	essment	lf ann of one date). Langu	written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candi- date). Language of assessment: German and/or English creditable for bonus						

Artificial Intelligen	ce and D		dits) ence (15 E	CTS cr	redits)							
	Comput											
	ECTS 5 Duration			n	1 semester	Method of grading	numerical grade	Modul level	undergraduate			
	Courses	5			V (2) + Ü (2) Module taught in: German and/or English							
	Method	of ass	essment	written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candi- date). Language of assessment: German and/or English creditable for bonus								
	Referre	d to in l	PO I	§ 22	l Nr. 3 b)							
10-I-NLP-222-m01	Natural	Langua	age Proce	ssing								
	ECTS	5	Duration		1 semester	Method of grading	numerical grade	Modul level	undergraduate			
	Courses	5		V (2) + Ü (2) Module taught in: German and/or English								
					_							
	Method	ofass	essment	writte If ann of one date). Langu	n examination (a ounced by the lec e candidate each	oprox. 60 to 120 minute turer at the beginning o	of the course, the written r an oral examination in					
	Method Referred			writte If ann of one date). Langu credit	n examination (ap ounced by the lec e candidate each uage of assessme	pprox. 60 to 120 minute turer at the beginning ((approx. 20 minutes) of	of the course, the written r an oral examination in					
	Referre	d to in l		writte If ann of one date). Langu credit § 22 I	n examination (ap ounced by the lec e candidate each uage of assessme cable for bonus	pprox. 60 to 120 minute turer at the beginning ((approx. 20 minutes) of	of the course, the written r an oral examination in		replaced by an oral examination s (approx. 15 minutes per candi-			
10-I-SNA-222-m01	Referre Statisti	d to in l	.PO I	writte If ann of one date). Langu credit § 22 I lysis	n examination (ap ounced by the lec e candidate each uage of assessme cable for bonus	pprox. 60 to 120 minute turer at the beginning ((approx. 20 minutes) of	of the course, the written r an oral examination in lish					
10-I-SNA-222-m01	Referre Statisti	d to in l cal Ne t	PO I work Ana	writte If ann of one date). Langu credit § 22 I lysis 1 V (2) -	n examination (approximation)	oprox. 60 to 120 minute turer at the beginning o (approx. 20 minutes) or nt: German and/or Engl	of the course, the written r an oral examination in lish	groups of 2 candidates	s (approx. 15 minutes per candi			
10-I-SNA-222-m01	Referre Statisti ECTS Courses	d to in L cal Net 5	PO I work Ana	writte If ann of one date). Langu credit § 22 I lysis V (2) - Modu writte If ann of one date). Langu	n examination (approved by the leader of assessme table for bonus I Nr. 3 b) 1 semester + Ü (2) 1 le taught in: Germination (approved by the leader of assessme table) 1 semester + Ü (2) 1 counced by the leader of the table for bonus I Nr. 3 b)	pprox. 60 to 120 minute turer at the beginning of (approx. 20 minutes) of nt: German and/or Engl Method of grading nan and/or English pprox. 60 to 120 minute turer at the beginning of	of the course, the written r an oral examination in lish numerical grade es). of the course, the written r an oral examination in	groups of 2 candidates Modul level n examination may be	s (approx. 15 minutes per candi			

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10-l-Kog-	Cogniti	ive Syst	ems									
Sys-222-m01	ECTS	5	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	undergraduate			
	Course	S		V (2) ·	V (2) + Ü (2)							
	Method	d of ass	essment			prox. 60 to 120 minut						
				lf ann	If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination							
				date).	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-TML-222-m01	Theory	of Mac	hine Lear	ning								
	ECTS	5	Duratio	n	1 semester	Method of grading	numerical grade	Modul level	undergraduate			
	Course	S			+ Ü (2)							
				<u> </u>	-	an and/or English						
	Methoo	d of ass	essment	writte	n examination (ap	prox. 60 to 120 minut	es). of the course, the written eve	mination may be	replaced by an oral examination			
				of one	e candidate each (approx. 20 minutes) o	r an oral examination in grou	ins of 2 candidate	replaced by an oral examination s (approx. 15 minutes per candi-			
				date).								
				Language of assessment: German and/or English								
	_				able for bonus							
		d to in		§ 22 Nr. 3 b) of Artificial Intelligence and Data Science 1								
10-I-AG- KIDS1-222-m01		· · · · · ·			, <u> </u>		1					
NID51-222-11101	ECTS	5	Duratio		1 semester	Method of grading	numerical grade	Modul level	undergraduate			
	Course				$V(2) + \ddot{U}(2)$							
	Method	d of ass	essment	written examination (approx. 60 to 120 minutes).								
				If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candi-								
				date).								
				Language of assessment: German and/or English								
				creditable for bonus								
10-I-AG-					ficial Intelligence	and Data Science 2	1					
KIDS2-222-m01	ECTS	5	Duratio		1 semester	Method of grading	numerical grade	Modul level	undergraduate			
	Course	_		V (2) + Ü (2)								
	Methoo	d of ass	essment	written examination (approx. 60 to 120 minutes).								
				If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candi-								
				date).								
				Langu	lage of assessmer	nt: German and/or Eng	lish					
				credit	able for bonus	_						

Computer Science	(10 ECTS c	redits)								
10-I-RAL-152-m01	Digital co	omput	er systen	ıs							
-		.0	Duration		1 semester	Method of grading	numerical grade	Modul level	undergraduate		
	Courses		<u>, </u>	V (4)	+ Ü (2)	I			•		
	Method o	of asse	essment	lf anr of on 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 candi- date). creditable for bonus						
10-I-RIÜ-191-m01	Compute	er Netv	vorks and	Infor	nation Transmissio	n					
	ECTS 1	0	Duratio	า	1 semester	Method of grading	numerical grade	Modul level	undergraduate		
	Courses			V (4)	+ Ü (2)	•		•	•		
	Method of assessment			lf anr of on date) credit	f announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candi- date). creditable for bonus						
	Referred	to in L	PO I	§ 22	Nr. 3 b), § 69 Nr.	1 C)					
10-I-TIV-152-m01	Theoretical Informatics										
	ECTS 5 Duratio		Duration	า	1 semester	Method of grading	numerical grade	Modul level	undergraduate		
	Courses			V (4)							
	Method of assessment			written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral ex of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes date).							
	Referred to in LPO I			§ 49 Nr. 1 a) § 69 Nr. 1 a)							
10-I-TIT-191-m01	Tutorial 1	Theore	etical Info								
	ECTS 5 Duratio			า	1 semester	Method of grading	(not) successfully comp	oleted Modul level	undergraduate		
	Courses			Ü (2)							
	Method o	ofasse	essment	group b) wr	os as well as approx itten examination (a		s written in the exercise		of own solutions in the exercise		

10-I-SEC-191-m01	IT Security									
	ECTS 5	Duration	1 I	1 semester	Method of grading	numerical grade	Modul level	undergraduate		
	Courses			V (2) + Ü (2) Module taught in: German and/or English						
	Method of asse	essment	written examination (approx. 60 to 120 minutes).							
			If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus							
10-l=lCG-161-m01	Interactive Con	nputer Gr	aphics							
	ECTS 5	Duration		1 semester	Method of grading	numerical grade	Modul level	graduate		
	Courses		V (2) +	⊦Ü (2)						
	Method of asse	essment	lf ann of one date). Separ Langu	vritten examination (approx. 60 to 120 minutes). f announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candi- late). Geparate written examination for Master's students. Language of assessment: German and/or English creditable for bonus						
	Additional Info	rmation	Focus	es available for stu	dents of the Master's	programme Informatik (Compu	ter Science, 120	D ECTS credits): HCI.		
10-I-WBS-152-m01	Knowledge-ba	sed Syste	ems							
	ECTS 5	Duration		1 semester	Method of grading	numerical grade	Modul level	undergraduate		
	Courses		V (2) +	+ Ü (2)						
	Method of asse		written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examin of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per c date). Language of assessment: German and/or English creditable for bonus							
	Referred to in L			Nr. 3 b)			,			
10-I-APR-172-m01	Advanced Prog	ramming								
	ECTS 5	Duration		1 semester	Method of grading	numerical grade	Modul level	undergraduate		
	Courses		V (2) +							
	Method of asse		written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candi- date). Language of assessment: German and/or English creditable for bonus							
	Referred to in L			Nr. 3 b)						
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10-I-KT-191-m01	Computational Complexity												
	ECTS	5	Duratio	n	1 semester	Method of grading numerical grade	Modul level	undergraduate					
	Cour	ses		V (2) ·	$(2) + \ddot{U}(2)$								
	Meth	od of as:	sessment	If ann of one date). Langu Asses	written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candi- date). Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus								
	Refe	rred to in	LPO I	§ 22	I Nr. 3 b)								
10-I-KD-191-m01	Cryp	tography	hy and Data Security										
	ECTS	5 Duration		1 semester	Method of grading numerical grade	Modul level	undergraduate						
	Cour	ses		V (2) ·	V (2) + Ü (2)								
	Meth	od of as:	sessment	If ann of one date). Langu Asses	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 exami of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per date). Language of assessment: German and/or English Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus								
	Refe	rred to in	LPO I	§ 22 ll Nr. 3 b)									
10-l-3D-152-m01	3D P	oint Clou	d Processi	ing	ng								
	ECTS	5	Duratio		1 semester	Method of grading numerical grade	Modul level	undergraduate					
	Cour				V (2) + Ü (2)								
		od 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 candi- date). Language of assessment: German and/or English creditable for bonus § 22 II Nr. 3 b)									
	Refe	rea to In	LPUT	8 22 1	i INI. 3 DJ								

10-I-BS-191-m01	Operati	Operating Systems											
	ECTS	5	Duration	n	1 semester	Method of grading	numerical grade	Modul level	undergraduate				
	Courses	5			(2) + Ü (2) odule taught in: English								
	Method	of asse	essment	If ann of one date). Langu	written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candi- date). Language of assessment: German and/or English creditable for bonus								
10-I-RAK-152-m01	Comput	er Arch	itecture										
	ECTS 5 Duration			n	1 semester	Method of grading	numerical grade	Modul level	undergraduate				
	Courses	5		V (2) +	⊦Ü (2)								
			essment	If ann of one date). Langu credit	vritten examination (approx. 60 to 120 minutes). f announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candi- late). anguage of assessment: German and/or English reditable for bonus								
	Referred	d to in L	.PO I		§ 22 II Nr. 3 b) § 69 I Nr. 1 c): Rechnerarchitektur								
10-I-SKS-191-m01	Control	Princip	les of Mo	odern C	dern Communication Systems								
	ECTS	8	Duration		1 semester	Method of grading	numerical grade	Modul level	undergraduate				
	Courses			V (4) +	+ Ü (2)								
	Method	of asse	essment	lf ann of one date). Langu	ounced by the lecture candidate each (a		of the course, the written exami an oral examination in groups		replaced by an oral examination 5 (approx. 15 minutes per candi-				
10-I-BPI-222-m01	Practice	e/Job-o	riented In	ternsh	ip Computer Sciend	ce							
	ECTS	5	Duration	n	1 semester	Method of grading	(not) successfully completed	Modul level	undergraduate				
	Courses	5		P (o)									
	Method	ofasse	essment		ment report (5 to 10 lage of assessment	pages) : German and/or Engl	ish						
	Additio	nal Info	rmation	block	placement, duratio	n 4 to 6 weeks							

10-I-AGT-152-m01	Algorit	hmic G	raph Theo	ry								
	ECTS	5	Duratio	า	1 semester	Method of grading	numerical grade	Modul level	undergraduate			
	Course	!S		V (2) ·	V (2) + Ü (2)							
	Metho	d of ass	essment	lf ann of on date) Langu	rritten 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 f one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candi- ate). anguage of assessment: German and/or English reditable for bonus							
	Referre	ed to in	LPO I	§ 22	§ 22 II Nr. 3 b)							
10-l-Gl-152-m01	Selected Basics of Computer Science											
	ECTS	5	Duratio	า	1 semester	Method of grading	numerical grade	Modul level	undergraduate			
	Course	.s		V (4) ·	+ Ü (2)							
		u of ass	essment	lf ann of on 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 candi- date). Language of assessment: German and/or English creditable for bonus							
subsidiary subject												
Mathematics	I											
10-M-DI- Maf-152-m01		-			Mathematics for students of other subjects							
Mai-152-11101	ECTS	10	Duratio			Method of grading numerical grade		Modul level	undergraduate			
	Course	-		V (4) + Ü (2)								
	Metho	d of ass	essment	b) ora c) ora 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-	Numer	ical Ma	thematics	1 for s	tudents of other su	ubjects						
m01	ECTS	10	Duratio	า	1 semester	Method of grading	numerical grade	Modul level	undergraduate			
	Course	!S		V (4) ·	+ Ü (2)							
				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								

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10-M-STO-1af-152-	Stocha	astics 1 f	for studer	its of o	ther subjects						
m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade	Modul level	undergraduate			
	Course	es		V (4) -	- + Ü (2)	·	•	,			
	Metho	d of ass	essment	b) ora c) ora 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-ZT-	Introd	uction Ir	nto Numb	er Theo	ory for students of a	ther subjects					
Haf-152-m01	ECTS	10	Duratio	n	1 semester	Method of grading numerical grade	Modul level	undergraduate			
	Course	es		V (4) ·	+ Ü (2)						
				b) ora c) ora Langu credit	l examination of on l examination in gro lage of assessment able for bonus	pprox. 90 to 180 minutes, usually chosen) or e candidate each (15 to 30 minutes) or oups (groups of 2, 10 to 15 minutes per candidate) : German and/or English					
10-M-DGLaf-152-	Ordina	ry Diffe	rential Eq	uation	s for students of otl	her subjects					
m01	ECTS 10 Duration		n	1 semester	Method of grading numerical grade	Modul level	undergraduate				
	Course	es		V (4) -	+ Ü (2)						
	Metho	d of ass	essment	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-OML-222-	Optimi	ization f	or Machiı	ne Lear	ning						
m01	ECTS	10	Duratio		1 semester	Method of grading numerical grade	Modul level	undergraduate			
	Courses			V (4) + Ü (2) Module taught in: German and/or English							
	Metho	d of ass	essment	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 Assessment offered: In the semester in which the course is offered and in the subsequent semester creditable for bonus							

Physics													
11-EFNF-152-m01	Introdu	ction to	Physics	for Stu	Idents of other Disc	ciplines							
	ECTS	7	Duratio	ı	2 semester	undergraduate							
	Courses	S		V (4) ·	+ V (3)		-						
	Method	l of ass	essment	writte	written examination (60 to 120 minutes)								
	Additio	nal Info	ormation	accor APOL	according to § 2 para. 2 sentence 2 APOLmCh in conjunction with No. I 2nd letter d) and No. I 1st letter d) of annex 1 to the APOLmCh and No. 4 of annex 2 to the APOLmCh								
11-PFNF-152-m01	Laborat	Laboratory Course Physics for Students of other Disciplines											
	ECTS	3	Duratio	า	1 semester	Method of grading	(not) successfully completed	Modul level	undergraduate				
	Courses	S		P (4)	·			·					
	Method	l of ass	essment	tes). Each	a) practical assignment with oral test (approx. 15 minutes, during experiments) and b) written examination (approx. 90 minu- tes). Each experiment comprises preparation, performance and evaluation. Test as well as performance of experiments can each be repeated once.								
	Particip cation c			Only a	as part of pool of ge	eneral transferable ski	ills (ASQ): 10 places (lottery)						
	Additio	nal Info	ormation			sentence 2 APOLmCh nnex 2 to the APOLmC	in conjunction with No. I 2nd le	etter d) and No.	I 1st letter d) of annex 1 to the				
Economics													
12-EBWL-G-212-	Organiz	zation											
m01	ECTS	5	Duratio	า	1 semester	Method of grading	numerical grade	Modul level	undergraduate				
	Courses	S		V(2) + T(2)									
	Method	l of ass	essment	written examination (approx. 60 minutes) Language of assessment: German and/or English									
12-Ebus-F-212-mo	E-Busin	less											
	ECTS	5	Duratio	า	1 semester	Method of grading	numerical grade	Modul level	undergraduate				
	Courses	S		V (2) + T (2)									
	Method	l of ass	essment	a) written examination (approx. 60 minutes) or b) term paper (approx. 15 pages) or c) term paper (approx. 10 pages) and presentation (approx. 10 minutes); (weighted 2:1) or d) oral examination in groups of up to 3 candidates (approx. 10 minutes per candidate) Language of assessment: German and/or English									

12-NW-EV-	Introduction to Economics - Minor												
WL-152-m01	ECTS	5	Duratio	n	1 semester	Method of grading numerical grade	Modul level	undergraduate					
	Courses				$(2) + \ddot{U}(2)$								
	Method	d of ass	essment	writte	written examination (approx. 60 minutes)								
		oants ar of place		sens form	nax. 200 places. Modules 12-NW-EBWL and 12-NW-EVWL are not open for students of the following subjects: Wirtschaftswis- enschaft (Business Management and Economics) Bachelor's (BSc with 180 ECTS credits), Wirtschaftsinformatik (Business In prmation Systems) Bachelor's (BSc with 180 ECTS credits) and Wirtschaftsmathematik (Mathematics for Economics) Bache- or's (BSc with 180 ECTS credits).								
12-ExtUR-G-212-	Accounting												
m01	ECTS	5	Duratio	n	1 semester	Method of grading numerical grade	Modul level	undergraduate					
	Course	S		V (2)	+ T (2)								
	Method	d of ass	essment			pprox. 60 minutes) nt: German and/or English							
12-IntUR-G-212-	Manag	erial Ac	counting										
m01	ECTS	5	Duratio	n 1 semester		Method of grading numerical grade	Modul level	undergraduate					
	Course		<u> </u>	V (2)	V (2) + T (2)								
	Method	d of ass	essment		written examination (approx. 60 minutes) Language of assessment: German and/or English								
12-BPL-G-212-m01	Supply, Production and Operations Management												
	ECTS 5 Duratio			on 1 semester		Method of grading numerical grade	Modul level	undergraduate					
	Course		_,	V (2) + T (2)									
	Method	d of ass	essment	written examination (approx. 60 minutes) Language of assessment: German and/or English									
12-I&F-G-212-m01	Investr	nent an	d Finance				,						
	ECTS	5	Duratio	n	1 semester	Method of grading numerical grade	Modul level	undergraduate					
	Course			V (2) + T (2)									
	Method	d of ass	essment	written examination (approx. 60 minutes) Language of assessment: German and/or English									
12-EWiinf-G-212-	Busine	ss Infor	matics										
m01	ECTS	5	Duratio	n	1 semester	Method of grading numerical grade	Modul level	undergraduate					
	Course	S	1	V (2)	+ T (2)								
	Method	d of ass	essment	Lang	written examination (approx. 60 minutes) Language of assessment: German and/or English creditable for bonus								

12-GP-G-152-m01	Integra	ted Bu	siness Pro	cesses	5						
	ECTS	5	Duration	า	1 semester	Method of grading nu	merical grade	Modul level	undergraduate		
	Course	S		V (2) -	V (2) + Ü (2)						
	Methoo	d of ass	essment	b) teri c) terr	a) written examination (approx. 60 minutes) or b) term paper (approx. 15 pages) or c) term paper (approx. 10 to 15 pages) and presentation (approx. 10 minutes); (weighted 2:1) creditable for bonus						
	cation	ofplace		ness l provic subje (4) A v	15 places. (1) The number of places is not restricted for students of the Bachelor's degree subject Wirtschaftsinformatik (Busi- ness Information Systems) (BSc with 180 ECTS credits). (2) Additional places will be allocated to students of other subjects provided there is enough capacity. These additional places will be allocated by lot among all applicants irrespective of their subjects. (3) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (4) A waiting list will be maintained and places re-allocated by lot as they become available.						
12-FRBE-F-152-m01	Forwar	d and R	everse Bu	siness	Engineering						
	ECTS	5	Duration	ı	1 semester	Method of grading nu	merical grade	Modul level	undergraduate		
	Course	s		V (2) -	- + Ü (2)			•	·		
	Methoo	d of ass	essment	b) terr c) terr) written examination (approx. 60 minutes) or) term paper (approx. 15 pages) or) term paper (approx. 10 to 15 pages) and presentation (approx. 10 minutes); (weighted 2:1) reditable for bonus						
		Participants and allo- cation of places			50 places. Should the number of applications exceed the number of available places, places will be allocated as follows Bachelor's students of Wirtschaftsinformatik (Business Information Systems) (BSc with 180 ECTS credits) will be given p rential consideration. (2) The remaining places will be allocated to students of other subjects. (3) When places are allocated accordance with (1) and (2) and the number of applications exceeds the number of available places, places will be alloc by lot among applicants from this group. (4) Places on all courses of the module with a restricted number of places will be located in the same procedure. (5) A waiting list will be maintained and places re-allocated by lot as they become availa						
Linguistics											
04-DtLABA-BM-	Level C	ne Moo	dule Germ	an Ling	guistics						
SW-152-m01	ECTS	5	Duration		1 semester	Method of grading nu	merical grade	Modul level	undergraduate		
	Course				+ S (2) + T (1)	0 0	0				
			essment	• • •		pprox. 75 minutes)					
		d to in	LPO I	§ 43 l	Nr. 2 b) Nr. 2 b)						
o4-DtLABA-AM-	Level T	wo Moo	dule Gram	matica	l Structures of G	erman					
SW1-152-m01	ECTS	5	Duration	า		Method of grading nu	merical grade	Modul level	undergraduate		
	Course	S		V (1) +	- S (2) + T (1)		-				
	Metho	d of ass	essment			pprox. 75 minutes)					
		d to in		§ 43 l	Nr. 2 b) Nr. 2 b)	······································					

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Biology												
07-1A1TI-152-m01	Evoluti	on and	the Anima	al King	dom							
	ECTS	5	Duration		1 semester	Method of grading numerical grade	Modul level	undergraduate				
	Courses	-			/ (2) + Ü (3)							
					written examination (approx. 60 minutes) creditable for bonus							
	other p	rerequi	sites		Admission prerequisite to assessment: exercises. Regular attendance (minimum 80%) and successful completion of exerci- ses (approx. 25 to 30 hours) are prerequisites for admission to assessment.							
	Referre	d to in I	LPO I		§ 41 Nr. 1 (4 ECTS credits) and § 41 Nr. 4 (1 ECTS credits) § 61 Nr. 1 (4 ECTS credits) and § 61 Nr. 4 (1 ECTS credits)							
07-2A2GEN-	Genetic	cs, Neu	robiology	, Beha	viour							
V-152-m01	ECTS	5	Duration	n	1 semester	Method of grading numerical grade	Modul level	undergraduate				
	Courses			V (3)	-		•					
	Method of assessment				written examination (approx. 60 to 90 minutes) creditable for bonus							
	other p	rerequi	sites	Admi ses (a	Admission prerequisite to assessment: exercises. Regular attendance (minimum 80%) and successful completion of exerci- ses (approx. 25 to 30 hours) are prerequisites for admission to assessment.							
	Referred to in LPO I			§ 61	Nr. 2 (2 ECTS cred Nr. 3 (1 ECTS credi Nr. 4 (1 ECTS credi	ts)						
07-M-BST-152-m01	Mathematical Biology and Biostatistics											
	ECTS	4	Duration	n	1 semester	Method of grading numerical grade	Modul level	undergraduate				
	Courses	S		V (2)	- + Ü (2)		•					
	Method	d of ass	essment	written examination (approx. 60 minutes) creditable for bonus								
07-3A30E-	Plant a	nd Anir	nal Ecolog	sy								
KO-152-m01	ECTS	6	Duration	1	1 semester	Method of grading numerical grade	Modul level	undergraduate				
	Courses	S		V (2)	+ Ü (2)							
	Method	d of ass	essment	written examination (approx. 90 minutes) creditable for bonus								
	Referre	d to in I	LPO I	§ 61	Nr. 4							
07-3A3GEM-	Genes,	Molecu	ules, Tech									
T-152-m01	ļ,	6	Duration		1 semester	Method of grading numerical grade	Modul level	undergraduate				
	Course	S		V (4)				_				
	Method	d of ass	essment	writte	en examination (ap table for bonus	prox. 90 minutes)						

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Law														
02-J1-171-m01	Introduction to the German Legal System													
-	ECTS	5	Duratio	า	1 semester	Method of grading	numerical grade	Modul level	undergraduate					
	Course	S	<u> </u>	V (4)	· (4)									
	Method	d of ass	essment	writte	written examination (approx. 120 minutes)									
	Particip cation			ven p locate	max. 80 places. Students applying after not having successfully completed assessment in the past two semesters will be given preferential consideration. The remaining places will be allocated by lot. A waiting list will be maintained and places re-al- ocated by lot as they become available. Places on all courses of the module with a restricted number of places will be alloca- red in the same procedure.									
02-G&Hre-G-212-	Comme	Commercial and Business Law for Economics and Management												
m01	ECTS	5	Duratio	า	1 semester	Method of grading	numerical grade	Modul level	undergraduate					
	Course	S		V (3) ·	- + Ü (2)			•	•					
	Methoo	d of ass	essment		n examination (app sment offered: Usu	orox. 120 minutes) ally once a year, sum	mer semester							
Geography				-										
04-Geo-FER-	Introdu	iction to	o Geograp	hical I	Remote Sensing									
NE-152-m01	ECTS 5 Duratio			า	1 semester	Method of grading	numerical grade	Modul level	undergraduate					
	Courses			V (2) Modu	+ T (2) le taught in: Germa	n and/or English		·						
	Method of assessment			written examination (approx. 45 minutes) Language of assessment: German and/or English creditable for bonus										
	Referre	d to in l	LPO I	§ 66	§ 66 Nr. 2									
04-Geo-FER-	Applica	ations o	f Remote	Sensir	ng in Geography									
NA-152-m01	ECTS	5	Duratio	า	1 semester	Method of grading	numerical grade	Modul level	undergraduate					
	Course	S		V (2) + T (2) Module taught in: German and/or English										
	Method of assessment			Langu	written examination (approx. 45 minutes) Language of assessment: German and/or English creditable for bonus									
Medicine														
03-M-MT-152-m01	Practic	al Cour	se in med	ical te	minology									
	ECTS	5	Duratio	า	1 semester	Method of grading	(not) successfully completed	Modul level	unknown					
	Course	S		P (o)										
	Method	d of ass	essment	writte	n examination (app	orox. 60 to 90 minutes	5)							

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Key Skills Area (20 ECTS credits)													
General Key Skills (5 ECTS credits) In addition to the modules listed below, students may also take modules offered by JMU as part of the pool of general transferable skills (ASQ).													
General Key Skills (subject-specific)													
10-I-TUT1-152-m01	Tutor ac	Tutor activity 1											
	ECTS 2 Duration		۱ I		Method of grading	(not) successfully completed	Modul level	undergraduate					
	Courses	i .		T (2)									
	Method of assessment				Wrap-up report on tutoring activities (5 to 10 pages)								
				§ 22 Nr. 2 f) § 22 Nr. 3 f)									
10-I-TUT2-152-m01	Tutor ac	tivity 2											
	ECTS	2	Duratior	า		Method of grading	(not) successfully completed	Modul level	undergraduate				
	Courses			T (2)									
	Method of assessment			Wrap-up report on tutoring activities (5 to 10 pages)									
	Referrec	l to in Ll	PO I	§ 22 Nr. 2 f) § 22 Nr. 3 f)									
10-I-TUT3-152-m01	Tutor ac	tivity 3:											
	ECTS 2 Duration			า		Method of grading	(not) successfully completed	Modul level	undergraduate				
	Courses			T (2)									
	Method of assessment Wrap-up report on tutoring activities (5 to 10 pages)												
Subject-specific Key Skills (15 ECTS credits)													
10-I-SEM-	Semina	r - Selec	ted Topi	cs in Aı	tificial Intelligence	and Data Science							
KIDS-222-m01	ECTS	5	Duratior		1 semester	Method of grading	numerical grade	Modul level	undergraduate				
	Courses	;		S (2)									
	Method	of asse	ssment	term paper (10 to 15 pages) and presentation (30 to 45 minutes) with subsequent discussion Language of assessment: German and/or English									
10-I-KIDS-PW-232-	Artificia	l Intelli	gence an	d Data Science Project Workshop									
m01	ECTS	5	Duratior	า	1 semester	Method of grading	numerical grade	Modul level	undergraduate				
	Courses			R (3) Module taught in: German or English									
	Method of assessment			presentation of project results (30 to 45 minutes) Language of assessment: German and/or English creditable for bonus									

10-I-PV-152-m01	Project Presentation										
	ECTS 5 Duration		1	1 semester	Method of grading	numerical grade	Modul level	undergraduate			
	Courses			S (5)	S (5)						
				presentation of a project developed by the candidate analogous to a presentation for laypersons with a knowledge of compu- ter science at a trade fair as well as discussion (approx. 10 to 15 minutes total) Language of assessment: German and/or English							
	Referred to in LPO I			§ 22 II Nr. 3 b)							
Thesis (10 ECTS credits)											
10-I-KIDS-BA-222-	Bachelor-Thesis Artificial Intelligence and Data Science										
m01	ECTS 10 Duratio			n	1 semester	Method of grading	numerical grade	Modul level	undergraduate		
	Course	S		No courses assigned to module							
	Method	l of asse	essment	Bachelor's thesis (approx. 50 to 100 pages) Language of assessment: German and/or English							
	Additio	nal Info	rmation	Time to complete: 10 weeks.							