

Module Catalogue for the Subject

Didactics in Chemistry (Secondary School)

as Didaktikfach with the degree "Erste Staatsprüfung für das Lehramt an Hauptschulen"

> Examination regulations version: 2009 Responsible: Faculty of Chemistry and Pharmacy

JMU Würzburg • generated 26-Aug-2024 • exam. reg. data record L2|833|-|-|H|2009

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The subject is divided into

section / sub-section	ECTS credits	starting page
Compulsory Courses	20	5
Freier Bereich (general as well as subject-specific electives)		14
Subject-specific Extra Skills		15
Thesis	10	35

Abbreviations used

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

Unless otherwise stated, courses and assessments will be held in German, assessments will be offered every semester and modules are not creditable for bonus.

Notes

Should there be the option to choose between several methods of assessment, the lecturer will agree with the module coordinator on the method of assessment to be used in the current semester by two weeks after the start of the course at the latest and will communicate this in the customary manner.

Should the 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:

LASPO2009

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

11-Jan-2012 (2011-103)

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.



Compulsory Courses

(20 ECTS credits)

Successful completion of modules worth 20 ECTS credits in each subject selected as Didaktikfach (subject studied with a focus on teaching methodology) is a prerequisite for admission to the Erste Staatsprüfung (First State Examination) in the subject Didaktiken einer Fächergruppe der Hauptschule (Didactics of a Group of Subjects of Hauptschule).

Chemi	e title				Abbreviation
	stry Ed	ucation: Educational The	ory and Models of Te	eaching Concepts	08-FD-Ch-BM-Did-092-m01
Modul	e coord	inator		Module offered by	<u> </u>
holder	of the l	Professorship of Didactic	s of Chemistry	Institute of Inorgan	ic Chemistry
ECTS	Meth	od of grading	Only after succ. cor	npl. of module(s)	
5	nume	rical grade			
Duratio	on	Module level	Other prerequisites	;	
1 seme	ester	undergraduate			
Conter	nts	<u>.</u>			
This m	odule i	ntroduces students to the	e fundamentals of ch	emistry didactics.	
Intend	ed lear	ning outcomes			
Studer	nts have	e become familiar with th	eories and models fo	or teaching chemistr	y. They are able to select and pre
pare te	eaching	materials that support the	neir teaching goals a	nd know how to use	them in the chemistry classroom
Course	es (type, r	number of weekly contact hours,	anguage — if other than Ge	rman)	
		omprises 2 module com	ponents. Information	on courses will be li	sted separately for each module
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		le for bonus)			e components as specified be-
vidual			ful completion of the	module will require	successful completion of all ind
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First state examination for the teaching degree Grundschule Didactics in Chemistry (Primary School) (2009) First state examination for the teaching degree Hauptschule Didactics in Chemistry (Secondary School) (2009) First state examination for the teaching degree Sonderpädagogik Didactics in Chemistry (Secondary School) (2009) (2009)

First state examination for the teaching degree Sonderpädagogik Didactics in Chemistry (Middle School) (2013) First state examination for the teaching degree Mittelschule Didactics in Chemistry (Middle School) (2013)

Module title Abbreviation							
Concepts of Teaching Chemistry 08-FD-SchulUms-Did-092-mo						id-092-m01	
Module coordinator				Module offered by			
holder of the Professorship of Didactics of Chemist			s of Chemistry	Institute of Inorgani	ic Chemistry		
ECTS	Meth	od of grading	Only after succ. compl. of module(s)				
5	nume	rical grade					
Duratio	on	Module level	Other prerequisites				
1 seme	ster	undergraduate					
Conter	nts	• •					
Topics	covere	d in the chemistry curricu	ula for Hauptschule s	chools and ways to t	each them.		
Intend	ed lear	ning outcomes					
They h	ave dev	e become familiar with th veloped the ability to pla t curricula.					
Course	S (type, I	number of weekly contact hours,	language — if other than Gei	rman)			
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		sessment (type, scope, langua	age — if other than German.	examination offered — if no	t everv semester. informati	on on whether	
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Additio	onal inf	ormation					
Worklo	oad						
Teachi	ng cycl	e					
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Module appears in

First state examination for the teaching degree Grundschule Didactics in Chemistry (Primary School) (2009) First state examination for the teaching degree Hauptschule Didactics in Chemistry (Secondary School) (2009) First state examination for the teaching degree Sonderpädagogik Didactics in Chemistry (Secondary School) (2009) (2009)

First state examination for the teaching degree Sonderpädagogik Didactics in Chemistry (Middle School) (2013) First state examination for the teaching degree Mittelschule Didactics in Chemistry (Middle School) (2013)

Module title Abbreviation						
Experiments in Chemical Education 08-FD-ExUnt-092-m01					01	
Module coordinator				Module offered by		
holder	of the F	Professorship of Didactic	s of Chemistry	Institute of Inorgani	ic Chemistry	
ECTS	Metho	od of grading	Only after succ. con	pl. of module(s)		
5	nume	rical grade				
Duratio	on	Module level	Other prerequisites			
1 seme	ster	undergraduate				
Conten	ts					
This mo their le		quips students with expe	erimental skills and to	eaches them how to	incorporate experim	ents into
Intende	ed lear	ning outcomes				
le scho	ols and	e learned some essential I have developed the abi nts, tailor them to their to	lity to safely perform	them. They have dev	veloped the ability to	
Course	S (type, r	number of weekly contact hours, l	anguage — if other than Ger	man)		
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Module appears in

First state examination for the teaching degree Grundschule Chemistry (2009)

First state examination for the teaching degree Grundschule Didactics in Chemistry (Primary School) (2009) First state examination for the teaching degree Hauptschule Chemistry (2009)

First state examination for the teaching degree Hauptschule Didactics in Chemistry (Secondary School) (2009) First state examination for the teaching degree Sonderpädagogik Didactics in Chemistry (Secondary School) (2009)

First state examination for the teaching degree Sonderpädagogik Didactics in Chemistry (Middle School) (2013) First state examination for the teaching degree Mittelschule Chemistry (2013)

Module title Abbreviation						
Social	Forms	in Chemistry Learning a	nd Extracurricular Site	25	08-FD-HS-Did-092-1	m01
Module	e coord	inator		Module offered by		
holder of the Professorship of Didactic			cs of Chemistry	Institute of Inorgan	ic Chemistry	
ECTS		od of grading	Only after succ. con	npl. of module(s)		
5	nume	rical grade				
Duratio	on	Module level	Other prerequisites			
1 seme	ster	undergraduate				
Conten	Its	<u>.</u>	·			
This mo vironm		liscusses modes of inter	action in the chemist	y classroom as well	as out-of-classroom	learning en-
Intend	ed lear	ning outcomes				
		able to select and use ap classroom activities to e			mistry classroom. Th	ey are able
Course	S (type, r	number of weekly contact hours,	language — if other than Ge	rman)		
		omprises 2 module com	ponents. Information	on courses will be li	sted separately for e	ach module
compo		IS-Did-1-092: S (no infor	mation on SWS (week	ly contact hours) and	d course language av	vailable)
		IS-Did-2-092: Ü (no infor				
		Sessment (type, scope, langu ole for bonus)	age — if other than German,	examination offered — if no	t every semester, informati	on on whether
		n this module comprises	 the assessments in t	he individual modul	e components as sp	ecified he-
	nless st	ated otherwise, success				
Assess School		n module component o8	8-FD-HS-Did-1-092: So	cial Forms in Chemis	stry Learning at Com	orehensive
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First state examination for the teaching degree Sonderpädagogik Didactics in Chemistry (Secondary School) (2009)

First state examination for the teaching degree Sonderpädagogik Didactics in Chemistry (Middle School) (2013) First state examination for the teaching degree Mittelschule Didactics in Chemistry (Middle School) (2013)



Freier Bereich (general as well as subject-specific electives)

(ECTS credits)

Teaching degree students must take modules worth a total of 15 ECTS credits in the area Freier Bereich (general as well as subject-specific electives) (Section 9 LASPO (general academic and examination regulations for teaching-degree programmes)). To achieve the required number of ECTS credits, students may take any modules from the areas below.

Freier Bereich -- interdisciplinary: The interdisciplinary additional offer for a teaching degree can be found in the respective Annex "Ergänzende Bestimmungen für den "Freien Bereich" im Rahmen des Studiums für ein Lehramt".



Subject-specific Extra Skills (ECTS credits)

(Freier Bereich (general as well as subject-specific electives) -- subject specific)

	e title				Abbreviation
Physica	al Chemist	y (teaching degree	for secondary schools	5)	08-PC-GHR-102-m01
Module	e coordinat	or		Module offered by	
für Stud		er Biologie, Lebensm	netik, Elektrochemie nittelchemie and des	Institute of Physica	l and Theoretical Chemistry
ECTS	Method o	fgrading	Only after succ. con	npl. of module(s)	
4	numerical			.p. 01	
- Duratio	<u> </u>	dule level	Other prerequisites		
1 seme	ster und	lergraduate			
Conten			1		
		sses the fundament	al principles of therm	odynamics kinetics	and electrochemistry.
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Modul	e title				Abbreviation
Inorga	nic Che	mistry of the Elements (teaching degree for s	econdary schools)	08-AC2-LAGY-102-m01
Module	e coord	inator		Module offered by	
lecture mistry)		ure "Festkörperchemie"	(Solid State Che-	Institute of Inorgan	ic Chemistry
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)	
3	nume	rical grade			
Duratio	on	Module level	Other prerequisites		
1 seme	ster	undergraduate	, , ,		
Conten		andergradate	L		
		quins students with an		of metals allovs and	l saline compounds. It focuses
		ures and properties, spe			
		ning outcomes			
			cture and properties of	of metals, allovs and	saline compounds in an appro
		. They are able to system			
-		umber of weekly contact hours,			•
		ion on SWS (weekly con			2)
					-> ot every semester, information on whethe
		le for bonus)	in other than bernally		in semicorer, mornation on whethe
a) 1 to	3 writte	n examinations (1 writte	n examination: appro	x. 90 minutes; 2 writ	tten examinations: approx. 60
or 90 n	ninutes	each; 3 written examina	ations: approx. 60 mir	nutes each) or b) oral	l examination of one candidate
		20 minutes) or c) oral ex		(groups of 2, approx	. 30 minutes)
		ssessment: German or E	nglish		
Allocat	ion of p	olaces			
Additio	onal info	ormation			
Worklo	ad				
			_		
Teachi	ng cycl	9			
Referre	ed to in	LPO I (examination regulation	is for teaching-degree progra	ummes)	
		mie "Allgemeine und An			Analvtische Chemie"
	e appea		,	,	,
		mination for the teachin	g degree Grundschule	Chemistry (2000)	
					stry (Primary School) (2009)
		mination for the teachin			, , , , , , , , , , , , , , , , , , , ,
					stry (Secondary School) (2009)
		mination for the teachin	,		
		mination for the teachin			
		mination for the teachin	g degree Sonderpäda	gogik Didactics in Cł	nemistry (Secondary School)
(2009) First st		mination for the teaching	a doaroo Condornado	angik Didactics in Ch	nomistry (Middle School) (corr
		mination for the teachin			nemistry (Middle School) (2013
				• • -	try (Middle School) (2013)
		manual on the teaching			

Module	title				Abbreviation	
Organio schools		istry - laboratory course	(teaching degree for	secondary	o8-OC-Prakt-GHR-o	92-m01
Module coordinator Module offered by						
lecture	rs Orga	nische Chemie (Organic	Chemistry)	Institute of Organic	Chemistry	
ECTS	Metho	od of grading	Only after succ. com	pl. of module(s)		
5	(not) s	successfully completed				
Duratio	n	Module level	Other prerequisites			
1 seme	ster	undergraduate				
Conten	ts					
lated le dition t their kn	cture(s o those owledg	ives students the opport b). After a safety briefing, e experiments, students v ge. The course focuses of organic chemistry, simple	the students autonor will be expected to ta n the safe handling o	nously conduct expe ke oral tests and wri f hazardous substan	eriments in the labor te lab reports to den ices, simple experim	ratory. In ad- nonstrate
Intende	ed learr	ning outcomes				
rations	of orga ources.	v how to safely handle hand They are able to connect bry.	able to analyse the yi	eld and purity of the	products and identi	fy possible
Course	S (type, n	umber of weekly contact hours, l	anguage — if other than Ger	man)		
P (no in	format	ion on SWS (weekly cont	act hours) and cours	e language available	e)	
module is	creditab	e essment (type, scope, langua le for bonus)				
Assess	ment o	riment examination talks ffered: once a year, sumr ssessment: German or Eı	ner semester	approx. 15 minutes e	acn), log (approx. 5	to 10 pages)
Allocat	ion of p	olaces				
 Additio	nal info	ormation				
 Worklo	ad					
Teachir	ng cycl	e				
Referre	d to in	LPO I (examination regulation	s for teaching-degree progra	mmes)		
§ 42 (1)	2. Che	mie "Organische und Bic	oorganische Chemie"			
Module	appea	in				
First sta First sta	ate exa ate exa	mination for the teaching mination for the teaching mination for the teaching mination for the teaching	g degree Grundschule g degree Hauptschule	Didactics in Chemis Chemistry (2009)		
First sta First sta	ate exa	mination for the teaching mination for the teaching	g degree Realschule C	hemistry (2009)		-
		mination for the teaching mination for the teaching			nemistry (Middle Sch	100l) (2013)
LA Hauptscl School) (20		actics in Chemistry (Secondary		nerated 26-Aug-2024 • exam uptschulen (Didaktikfach) Ch		page 18 / 36



Module	e title				Abbreviation
Basic N	Nathen	natics (teaching degree)			08-PC-VKM-LA-102-m01
Module coordinator Module offered by					
lecture	r of blo	ck course "Mathematik"	(Mathematics)	Institute of Physica	l and Theoretical Chemistry
ECTS	Meth	od of grading	Only after succ. con	pl. of module(s)	
2	(not)	successfully completed			
Duratio		Module level	Other prerequisites		
ı seme	ster	undergraduate			
Conten	ts		<u>.</u>		
					sed in physical/theoretical che thermodynamics and kinetics.
-		ning outcomes			
		-	atical matheda. The	, ara abla ta annlu th	ose methods to problems in ch
mistry.	is nave	e been trained in mathem	latical methods. mey	are able to apply th	ose methods to problems in ch
	S (type r	number of weekly contact hours, l	anguage — if other than Ger	rman)	
		rmation on SWS (weekly			ahle)
					•
		Sessment (type, scope, langua ole for bonus)	ge — If other than German, (examination offered — if no	t every semester, information on whether
		vork sheets)			
		issessment: German or Ei	nglish		
	ion of I				
٥dditio	nal inf	ormation			
Auditio		ormation			
Worklo					
WOIKIO	au				
Teachiı	ng cycl	e			
Referre	d to in	LPO I (examination regulation	s for teaching-degree progra	mmes)	
-					
Module	e appea	ars in			
First sta	ate exa	mination for the teaching	g degree Grundschule	e Chemistry (2009)	
First sta	ate exa	mination for the teaching	g degree Grundschule	Didactics in Chemis	stry (Primary School) (2009)
First sta	ate exa	mination for the teaching	g degree Hauptschule	Chemistry (2009)	
Eirct ct	ate exa	mination for the teaching	g degree Hauptschule	Didactics in Chemis	stry (Secondary School) (2009)
TISL SLO	ate exa	mination for the teaching	g degree Realschule (Chemistry (2009)	
First sta		mination for the teaching	g degree Gymnasium	Chemistry (2009)	
First sta First sta First sta	ate exa	mination for the teaching			nemistry (Secondary School)
First sta First sta First sta (2009)	ate exa ate exa	mination for the teaching mination for the teaching	g degree Sonderpäda	gogik Didactics in Ch	
First sta First sta First sta (2009) First sta	ate exa ate exa ate exa	mination for the teaching mination for the teaching	g degree Sonderpäda g degree Sonderpäda	gogik Didactics in Ch gogik Didactics in Ch	nemistry (Secondary School) nemistry (Middle School) (2013

Module	title				Abbreviation
Exercises in Experimental Presentation					o8-Ch-GH-ÜiV-092-m01
Module	coord	inator		Module offered by	
lecturer	rs of th	e three lectures offered in	n this module	Faculty of Chemistry	y and Pharmacy
ECTS	Metho	od of grading	Only after succ. com	pl. of module(s)	
6	(not) s	successfully completed			
Duratio		Module level	Other prerequisites		
1 semes	ster	undergraduate			
Conten					
Student	ts will o	design, prepare and deliv nonstrations.	ver presentations on a	a range of topics in c	hemistry. Presentations will in-
Intende	ed learr	ning outcomes			
the spe particul chemis	cific ne lar teac try kno	eeds of their audience. The ching goal as well as to pl wledge and skills and the	ney are able to select lan and safely perforr eir teaching skills.	experiments on the n them. Students wi	a given topic that is tailored to topic in question that support a ll be expected to apply both their
Courses	S (type, n	umber of weekly contact hours, l	anguage — if other than Ger	man)	
compor • O	nent. 8-Ch-L/ 8-Ch-L/	A-ÜiV-1-092: Ü (no inform A-ÜiV-2-092: Ü (no inform	nation on SWS (weekl nation on SWS (weekl	y contact hours) and ly contact hours) and	sted separately for each module I course language available) I course language available) d course language available)
		essment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	t every semester, information on whether
	less st	ated otherwise, successf			e components as specified be- successful completion of all indi-
mistry) • 2 • ta • A • La Assessimistry) • 2 • ta • A • La Assessimistry) • 2 • ta • A • La • A • A • A • A • A • A • A • A	ECTS, alk with ssessn anguag ment ir ECTS, alk with ssessn anguag ment ir for Prir ECTS,	Method of grading: (not) a demonstrations (approx nent offered: once a year of assessment: Germa n module component o8- Method of grading: (not) a demonstrations (approx nent offered: once a year of assessment: Germa n module component o8- mary School and Seconda Method of grading: (not)	successfully complet (. 45 minutes) , winter semester n or English Ch-LA-ÜiV-2-092: Exe successfully complet (. 45 minutes) , winter semester n or English Ch-GH-ÜiV-3-092: Ex ary Public School Tea successfully complet	ercises in Experimen ed ercises in Experimer chers	tal Presentation (Inorganic Che- tal Presentation (Organic Che- ntal Presentation (Physical Che-
• A	ssessn	n demonstrations (approx nent offered: once a year ge of assessment: Germa	, winter semester		
• La Allocati		-			
		/11/03			
Additio	nal info	ormation			

Workload

Teaching cycle

--

Referred to in LPO I (examination regulations for teaching-degree programmes)

§ 42 (1) 3. Chemie "Übungen im Vortragen mit Demonstrationen"

Module appears in

First state examination for the teaching degree Grundschule Chemistry (2009)

First state examination for the teaching degree Grundschule Didactics in Chemistry (Primary School) (2009) First state examination for the teaching degree Hauptschule Chemistry (2009)

First state examination for the teaching degree Hauptschule Didactics in Chemistry (Secondary School) (2009) First state examination for the teaching degree Sonderpädagogik Didactics in Chemistry (Secondary School) (2009)

First state examination for the teaching degree Sonderpädagogik Didactics in Chemistry (Middle School) (2013) First state examination for the teaching degree Mittelschule Chemistry (2013)

Modul	e title				Abbreviation	
Organi	c Chem	istry 1 (teaching degree	e for secondary school	s)	08-0C1-GHR-092-m01	
Module coordinator				Module offered by		
holder	of the F	Professorship of Organic	c Chemistry	Institute of Organic	Chemistry	
ECTS	1	od of grading	Only after succ. con			
6		rical grade	only arter succ. con			
-						
Duratio	-	Module level	Other prerequisites	-		
1 semester		undergraduate	ses in the respective (usually 70% of exe	e classes as specifie rcises to be success	successful completion of exerci- ed at the beginning of the course fully completed) as well as regu- aximum of 2 incidents of unexcu	
Conter	nts					
the boi organio	nding s c compo	ituation of carbon and in	ntroduces students to discusses the fundan	the nomenclature onental principles of	of organic chemistry. It examines f simple and moderately complex stereochemistry, substitution, ad	
Intend	ed lear	ning outcomes				
lecules that pu synthe	s. They a urpose, ses.	are able to describe and they can analyse and ca	formulate some of the ategorise the character	e most important re ristic reaction condi	nalyse the stereochemistry of mo actions in organic chemistry. For tions and can use them for simpl	
Course	es (type, r	number of weekly contact hours,	, language — if other than Ger	man)		
V + Ü (no infoi	rmation on SWS (weekly	contact hours) and co	ourse language avai	lable)	
		Sessment (type, scope, langu le for bonus)	age — if other than German, o	examination offered — if n	ot every semester, information on whether	
or 90 n each (a	ninutes approx.		ations: approx. 60 mir xamination in groups	utes each) or b) ora	tten examinations: approx. 60 Il examination of one candidate x. 30 minutes)	
	tion of p					
Allocul		Jucco				
 •						
AUGITIC	nat inf	ormation				
Worklo	ad					
			_			
Teachi	ng cycl	e				
Referre	ed to in	LPO I (examination regulatio	ns for teaching-degree progra	mmes)		
§ 42 (1) 2. Che	emie "Organische und B	ioorganische Chemie"			
Modul	e appea	ars in				
First st First st	ate exa ate exa ate exa	mination for the teachin mination for the teachin	ng degree Grundschule ng degree Hauptschule	Didactics in Chemi Chemistry (2009)	stry (Primary School) (2009) stry (Secondary School) (2009)	
						
		mination for the teachin	ig degree Realschule (hemistry (2009) enerated 26-Aug-2024 • exam	n. reg. data re- page 23 / 36	

First state examination for the teaching degree Sonderpädagogik Didactics in Chemistry (Secondary School) (2009)

First state examination for the teaching degree Sonderpädagogik Didactics in Chemistry (Middle School) (2013) First state examination for the teaching degree Mittelschule Chemistry (2013) First state examination for the teaching degree Mittelschule Didactics in Chemistry (Middle School) (2013)

Module title Abbreviation					
Organic Chemistry 2 (teaching degree for secondary schools) 08-0C2-GHR-092-mo1					
Module coordinator Module offered by					
holder	ofthe	Chair of Physically Organ	ic Chemistry	Institute of Organic	Chemistry
ECTS	Meth	od of grading	Only after succ. con	npl. of module(s)	
7	nume	rical grade			
Duratio	on	Module level	Other prerequisites		
1 semester undergraduate		ses in the respective (usually 70% of exe	e classes as specifie rcises to be success	successful completion of exerci- d at the beginning of the course fully completed) as well as regu- aximum of 2 incidents of unexcu	
Conter	nts				
the exa on read well as	ample c ctions t s rearrai	of carbonyl compounds, i	t extends the student	s' knowledge of sub	ific reactions of aromatics. Using estitution, elimination and additi- ation and reduction reactions as
bonyl o they ca	compou	unds. They are able to dea and formulate multi-stag	scribe specific reaction	ons of carbonyls and	e the varying reactivity of car- aromatics. For that purpose, anisms and can transfer them to
		number of weekly contact hours,	language — if other than Ger	rman)	
		rmation on SWS (weekly			able)
		sessment (type, scope, langua	ge — if other than German, o	examination offered — if no	ot every semester, information on whether
or 90 n each (a	ninutes approx.		tions: approx. 60 mir amination in groups	nutes each) or b) ora	tten examinations: approx. 60 l examination of one candidate . 30 minutes)
-	tion of				
Additio	onal inf	ormation			
Worklo	bad				
Teachi	ng cycl	e			
Referre	ed to in	LPO I (examination regulation	s for teaching-degree progra	mmes)	
§ 42 (1) 2. Chemie "Organische und Bioorganische Chemie" Module appears in First state examination for the teaching degree Grundschule Chemistry (2009) First state examination for the teaching degree Grundschule Didactics in Chemistry (Primary School) (2009) First state examination for the teaching degree Hauptschule Chemistry (2009) First state examination for the teaching degree Hauptschule Didactics in Chemistry (Secondary School) (2009)					

First state examination for the teaching degree Sonderpädagogik Didactics in Chemistry (Secondary School) (2009)

First state examination for the teaching degree Sonderpädagogik Didactics in Chemistry (Middle School) (2013) First state examination for the teaching degree Mittelschule Chemistry (2013) First state examination for the teaching degree Mittelschule Didactics in Chemistry (Middle School) (2013)

	Module title				Abbreviation	
Biochemistry (teaching degree for secondary schools)					08-BC-GHR-092-mc)1
Module coordinator			Module offered by			
holder of the Chair of Biochemistry			Chair of Biochemist	ry		
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)		
4	1	rical grade				
4 Duratio						
1 semester undergraduate		ses in the respective (usually 70% of exe	site to assessment: e classes as specifie rcises to be success ercises (usually a ma	d at the beginning o fully completed) as v	f the course vell as regu-	
Conten	nts					
	ising le	ctures and exercises, thi	s module acquaints s	tudents with the fun	damental principles	of bioche-
Intend	ed lear	ning outcomes	_			
		e become familiar with th cal processes in cellular		ples of biochemistry	. They are able to de	scribe the
Course	S (type, r	number of weekly contact hours,	language — if other than Ge	rman)		
V + Ü (I	no infoi	rmation on SWS (weekly	contact hours) and co	ourse language avail	able)	
		sessment (type, scope, langua le for bonus)	age — if other than German,	examination offered — if no	t every semester, informati	on on whether
minute Langua	es) or c)	written examinations: 60 oral examination in grou ssessment: German or E blaces	ups (groups of 2, appi			
Additio	onal inf	ormation				
Additio		ormation				
 Worklo						
 Worklo	oad					
 Worklo Teachi	oad ng cycl		ns for teaching-degree progra	nmmes)		
 Worklo Teachin Referre	oad ng cycl ed to in	e				
 Worklo Teachin Referre § 42 (1)	ng cycl ed to in) 2. Che	e LPO I (examination regulatior emie "Organische und Bi				
 Worklo Teachin Referre § 42 (1) Module	ng cycl ed to in) 2. Che e appea	e LPOI (examination regulatior emie "Organische und Bi ars in	oorganische Chemie"			
 Worklo Teachin § 42 (1) Module First sta First sta First sta	ng cycl ed to in) 2. Che e appea ate exa ate exa ate exa	e LPO I (examination regulatior emie "Organische und Bi	oorganische Chemie" g degree Grundschule g degree Grundschule g degree Hauptschule	e Chemistry (2009) e Didactics in Chemis e Chemistry (2009)		-
 Worklo Teachin § 42 (1) Modulo First sta First sta First sta First sta First sta	ad ng cycl ed to in) 2. Che e appea ate exa ate exa ate exa ate exa ate exa ate exa ate exa ate exa	e LPOI (examination regulation emie "Organische und Bi ars in mination for the teachin mination for the teachin mination for the teachin mination for the teachin	oorganische Chemie" g degree Grundschule g degree Grundschule g degree Hauptschule g degree Hauptschule g degree Realschule (e Chemistry (2009) e Didactics in Chemis e Chemistry (2009) e Didactics in Chemis Chemistry (2009)	try (Secondary Scho	ool) (2009)
 Worklo Teachin 8 42 (1) Module First sta First sta First sta First sta First sta First sta First sta First sta First sta First sta	ng cycl ed to in) 2. Che e appea ate exa ate exa ate exa ate exa ate exa ate exa ate exa	e LPO I (examination regulation emie "Organische und Bi ars in mination for the teachin mination for the teachin	oorganische Chemie" g degree Grundschule g degree Grundschule g degree Hauptschule g degree Hauptschule g degree Realschule (g degree Sonderpäda g degree Sonderpäda	e Chemistry (2009) e Didactics in Chemis e Chemistry (2009) e Didactics in Chemis Chemistry (2009) gogik Didactics in Ch gogik Didactics in Ch	stry (Secondary Scho nemistry (Secondary	ool) (2009) School)



Module title Abbreviation					
Guidance in Self-reliant Scientific Work 08-FD-WPF-WA-092-m01					
Module coordinator Module offered by					
holder	of the F	Professorship of Didactic	s of Chemistry	Institute of Inorgani	ic Chemistry
ECTS	Metho	od of grading	Only after succ. compl. of module(s)		
2	(not) s	successfully completed			
Duration Module level Other prerequisites					
		undergraduate			
Conten		undergraduate	<u> </u>		
		vill teach students how to	o independently resea	arch and write on sel	ected topics in chemistry didac-
tics.					
Intende	ed learr	ning outcomes			
		, ,		•	mistry didactics. They are able to a advance the discipline.
Course	S (type, n	umber of weekly contact hours, l	anguage — if other than Ger	man)	
		ion on SWS (weekly cont)
		· · · · ·			t every semester, information on whether
		le for bonus)	ge — II other than German, e	examination onered — II no	t every semester, mornation on whether
		approx. 30 minutes)			
		ssessment: German or Ei	nglish		
Allocati	_		-		
Additio	nalinf	ormation			
Auuitio	natini				
Worklo	ad				
Teachir	ng cycl	e			
Referre	d to in	LPOI (examination regulation	s for teaching-degree progra	mmes)	
Module	appea	rs in			
First sta	ate exa	mination for the teaching	g degree Grundschule	e Chemistry (2009)	
					stry (Primary School) (2009)
		mination for the teaching			
					stry (Secondary School) (2009)
		mination for the teaching			
		mination for the teaching			
First sta (2009)	ate exa	mination for the teaching	g degree Sonderpäda	gogik Didactics in Cł	nemistry (Secondary School)
					nemistry (Middle School) (2013)
First sta	ate exa	mination for the teaching	g degree Mittelschule	Chemistry (2012)	
					try (Middle School) (2013)

Modul	Module title Abbreviation						
Preparation of Exams (Primary and Secondary Public Scholl Teachers) 08-FD-WPF-PVGSHS-092-mo1							
Module coordinator M				Module offered by	<u> </u>		
holder of the Professorship of Didactics of Chemistry			s of Chemistry	Institute of Inorgan	ic Chemistry		
ECTS	CTS Method of grading Only after succ. compl. of module(s)						
2	nume	rical grade					
Duratio	Duration Module level Other prerequisites						
1 seme	1 semester undergraduate						
Conter	nts						
Studer	nts will	solve selected questions	that were asked in th	ne state examination	n in previous years.		
		ning outcomes			· · ·		
	-		estions that were ask	ed in the state exan	nination in previous years.		
		umber of weekly contact hours, l	a .				
	_	tion on SWS (weekly cont			e)		
written		^{ile for bonus)} nation (approx. 30 minuto blaces	es)				
Additio	onal inf	ormation					
Worklo	ad						
Teachi	ng cycl	e					
Referre	ed to in	LPO I (examination regulation	s for teaching-degree progra	mmes)			
Modul	e appea	ars in					
		mination for the teaching					
			-		stry (Primary School) (2009)		
		mination for the teaching			stry (Secondary School) (2009)		
		-			hemistry (Secondary School) (2009)		
(2009)			S acgree sonacipada	Source and a state of the state	inemistry (Secondary School)		
		mination for the teaching	g degree Sonderpäda	gogik Didactics in C	hemistry (Middle School) (2013)		
		mination for the teaching	-				
First st	ate exa	mination for the teaching	g degree Mittelschule	Didactics in Chemis	stry (Middle School) (2013)		

Module title Abbreviation						
Extracı	Extracurricular Sites 08-FD-WPF-LLL-092-m01					
Module	e coord	inator		Module offered by		
holder of the Professorship of Didactics		s of Chemistry	Institute of Inorganic Chemistry			
ECTS Method of grading Only after succ. compl. of mo			pl. of module(s)			
4	4 (not) successfully completed					
Duratio	Duration Module level Other prerequisites					
1 seme	ster	undergraduate				
Conten	ts					
This m	odule c	liscusses the opportunition	es and limitations of	out-of-classroom lea	rning in chemistry.	
Intend	ed lear	ning outcomes				
activiti	es in so	able to plan chemistry les chool labs that support th hey perform experiments	eir teaching goals. T			
Course	S (type, r	number of weekly contact hours, l	anguage — if other than Gei	rman)		
compo • c	nent. 08-FD-W	omprises 2 module comp /PF-LLL-1-092: S (no infor /PF-LLL-2-092: P (no infor	mation on SWS (wee	kly contact hours) ar	nd course language a	available)
Metho	d of ass	sessment (type, scope, langua ole for bonus)		•		
 Assessment in this module comprises the assessments in the individual module components as specified below. Unless stated otherwise, successful completion of the module will require successful completion of all individual assessments. Assessment in module component o8-FD-WPF-LLL-1-092: Opportunities of Extracurricular Sites 2 ECTS, Method of grading: (not) successfully completed presentation of a project (approx. 30 minutes) Language of assessment: German or English Assessment in module component o8-FD-WPF-LLL-2-092: School Lab 2 ECTS, Method of grading: (not) successfully completed successful supervision of experiments in learn-teach-lab Language of assessment: German or English 						
Allocat	ion of p	places				
 Additio	onal inf	ormation				
Worklo	ad					
Teachi	ng cycl	e				
Referre	ed to in	LPO I (examination regulations	s for teaching-degree progra	mmes)		
Module						
First sta First sta	ate exa ate exa	mination for the teaching mination for the teaching mination for the teaching	g degree Grundschule g degree Hauptschule	Didactics in Chemis Chemistry (2009)		(2009)
LA Hauptso School) (20		actics in Chemistry (Secondary		enerated 26-Aug-2024 • exam untschulen (Didaktikfach) Ch		page 31 / 36

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First state examination for the teaching degree Hauptschule Didactics in Chemistry (Secondary School) (2009) First state examination for the teaching degree Realschule Chemistry (2009)

First state examination for the teaching degree Gymnasium Chemistry (2009)

First state examination for the teaching degree Sonderpädagogik Didactics in Chemistry (Secondary School) (2009)

First state examination for the teaching degree Sonderpädagogik Didactics in Chemistry (Middle School) (2013) First state examination for the teaching degree Mittelschule Chemistry (2013)

Module	e title		Abbreviation			
Inorganic Chemistry 1 (teaching degree)					08-AC1-LA-102-m01	
Module coordinator Modu			Module offered by	1		
lecturer of lecture "Experimentalchemie" (Experimental Institute of Inorganic Chemistry Chemistry)						
ECTS	Metho	od of grading	Only after succ. con	cc. compl. of module(s)		
20	nume	rical grade		· · · · · ·		
Duration Module level Other prerequisites						
1 seme	semester undergraduate By way of exception, additional prerequisites are listed in the sec assessments.			isites are listed in the section or		
Conten	ts					
module exercis autono ques, t	e introd es bas mously he synt	luces fundamental mode ed on the lecture on expe / conduct experiments in	ls of chemistry and p erimental chemistry a the laboratory. The c ces and analyses of u	rinciples of inorgani and its extension. Aft course focuses on lal	omplexometry. In addition, the c chemistry. It includes practical er a safety briefing, the students boratory safety, simple lab techr s. In addition, students have the	
		ning outcomes	<u> </u>			
are abl loped t approp Course	e to ide he abil riate m s (type, r	entify fundamental proble ity to perform the necess anner, both in written ar number of weekly contact hours,	ems in chemistry and ary stoichiometric ca ad oral form. language — if other than Ge	perform experiment llculations and descr rman)	nd their application areas. They ts to solve them. They have deve ribe the chemical processes in a sted separately for each module	
compo • 0 • 0	nent. 8-AC1- 8-AC1-	1-102: V + V + Ü (no infor LA-2-102: P (no informati	mation on SWS (weel on on SWS (weekly c	kly contact hours) ar ontact hours) and cc	nd course language available) Durse language available) Durse language available)	
		Sessment (type, scope, langua le for bonus)	ge — if other than German,	examination offered — if no	ot every semester, information on whether	
	nless st	ated otherwise, success			e components as specified be- successful completion of all ind	
mistry 1 2 3 4 4 5 6 7 7 7 7 7 7 7 7 7 7 7 7 7	Princip o ECTS o ECTS o minu approx anguag Other p especti omplet bsence	les of Inorganic Chemistr , Method of grading: nun written examinations (1 ites each; 3 written exam . 20 minutes) or c) oral ex ge of assessment: Germa rerequisites: Admission ve classes as specified a ted) as well as regular at e).	y merical grade written examination: inations: 60 minutes xamination in groups n or English prerequisite to asses t the beginning of the tendance of exercise AC1-LA-2-102: Inorga	approx. 90 minutes each) or b) oral exan (groups of 2, approx ssment: successful o course (usually 70% s (usually a maximu anic and Analytical C	stry Principles of Inorganic Che- ; 2 written examinations: 60 or nination of one candidate each x. 30 minutes) completion of exercises in the of exercises to be successfully m of 2 incidents of unexcused hemistry (lab) (teaching degree)	
		actics in Chemistry (Secondary	INTL M/Sumburg a m	enerated 26-Aug-2024 • exar	n. reg. data re- page 33 / 3	

LA Hauptschulen Didactics in Chemistry (Secondary	JMU Würzburg • generated 26-Aug-2024 • exam. reg. data re-	page 33 / 36
School) (2009)	cord Lehramt Hauptschulen (Didaktikfach) Chemie - 2009	

- pre/post-experiment examination talks (Vor-/Nachtestate, approx. 15 minutes each), log (approx. 5 to 10 pages)
- Assessment offered: once a year, summer semester
- Language of assessment: German or English

Assessment in module component o8-AC1-LA-3-102: Inorganic Chemistry 1 (accompanying lecture) (teaching degree)

- 3 ECTS, Method of grading: numerical grade
- a) 1 to 3 written examinations (1 written examination: approx. 90 minutes; 2 written examinations: 60 or 90 minutes each; 3 written examinations: 60 minutes each) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes)
- Language of assessment: German or English

Allocation of places

UNIVERSITÄT

WÜRZBURG

Additional information

Workload

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Teaching cycle

Referred to in LPO I (examination regulations for teaching-degree programmes)

§ 42 (1) 1. Chemie "Allgemeine und Anorganische Chemie" und "Physikalische und Analytische Chemie"

§ 62 (1) 1. Chemie "Allgemeine und Anorganische Chemie"; "Physikalische und Analytische Chemie"

Module appears in

First state examination for the teaching degree Grundschule Chemistry (2009)

First state examination for the teaching degree Grundschule Didactics in Chemistry (Primary School) (2009) First state examination for the teaching degree Hauptschule Chemistry (2009)

First state examination for the teaching degree Hauptschule Didactics in Chemistry (Secondary School) (2009) First state examination for the teaching degree Realschule Chemistry (2009)

First state examination for the teaching degree Gymnasium Chemistry (2009)

First state examination for the teaching degree Sonderpädagogik Didactics in Chemistry (Secondary School) (2009)

First state examination for the teaching degree Sonderpädagogik Didactics in Chemistry (Middle School) (2013) First state examination for the teaching degree Mittelschule Chemistry (2013)



Thesis

(10 ECTS credits)

Preparation of a written Hausarbeit (thesis) in accordance with the provisions of Section 29 LPO I (examination regulations for teaching-degree programmes) is a prerequisite for teaching degree students to be admitted to the Erste Staatsprüfung (First State Examination). In accordance with the provisions of Section 29 LPO I, students studying for a teaching degree Hauptschule may write this thesis in the subject Didaktik einer Fächergruppe der Hauptschule (Didactics of a Group of Subjects of Hauptschule), in the subject they selected as Unterrichtsfach (subject studied with a focus on the scientific discipline) or in the subject Erziehungswissenschaften (Educational Science). Pursuant to Section 29 Subsection 1 Sentence 2 LPO I, students may also choose to write an interdisciplinary thesis.

Modul	e title		Abbreviation			
Admission work (Chemistry for Secondary School Teachers 08-Ch-HA-DF-HS-092-m01						
Module coordinator Modu				Module offered by		
head o	nd of the research group offering the module			Faculty of Chemistr	y and Pharmacy	
ECTS	Meth	od of grading	Only after succ. con	er succ. compl. of module(s)		
10	nume	rical grade	Where applicable, specific modules/module components as specified l supervisor.			
Durati	Duration Module level Other prerequisites					
1 seme	1 semester undergraduate					
Conter	nts					
in cher	mistry o		y have agreed upon v	with an authorised e	ly research and write on a topic xaminer in accordance with the rammes).	
Intend	ed lear	ning outcomes				
and an sions,	alyse a and off	a problem, conduct a liter	ature search, refer to ution of said problem	relevant theories, in	rite an academic paper (define terpret data, draw logical conclu- o deadlines be able to prepare	
Course	es (type, i	number of weekly contact hours,	anguage — if other than Ge	rman)		
no cou	irses as	signed				
		sessment (type, scope, langua ole for bonus)	ge — if other than German,	examination offered — if no	t every semester, information on whether	
Langua	age of a	(Zulassungsarbeit, appro assessment: German, exc ree programmes)		e with Section 29 LP	O I (examination regulations for	
Allocat	tion of	places				
Additio	onal inf	ormation				
Worklo	oad					
Teachi	ng cycl	e				
Referre	ed to in	LPO I (examination regulation	s for teaching-degree progra	immes)		
Modul	e appea	ars in				
			,		stry (Secondary School) (2009) try (Middle School) (2013)	