

## Subdivided Module Catalogue for the Subject

# Chemistry

as Unterrichtsfach 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|032|-|-|H|2009

### 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.

LA Hauptschulen	Chemistry (	(2009)
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### The subject is divided into

	Module title	ECTS credits	Method of grading	page
Scientific Discipline (54 E	CTS credits)			
Compulsory Courses (54	4 ECTS credits)			
08-PC-GHR-102-m01	Physical Chemistry (teaching degree for secondary schools)	4	NUM	38
08-OC-Prakt-GHR-092-	Organic Chemistry - laboratory course (teaching degree for se-			
m01	condary schools)	5	B/NB	32
08-PC-VKM-LA-102- m01	Basic Mathematics (teaching degree)	2	B/NB	39
08-Ch-GH-ÜiV-092- m01	Exercises in Experimental Presentation	6	B/NB	12
08-0C1-GHR-092-m01	Organic Chemistry 1 (teaching degree for secondary schools)	6	NUM	26
08-0C2-GHR-092-m01	Organic Chemistry 2 (teaching degree for secondary schools)	7	NUM	28
08-BC-GHR-092-m01	Biochemistry (teaching degree for secondary schools)	4	NUM	11
08-AC1-LA-102-m01	Inorganic Chemistry 1 (teaching degree)	20	NUM	6
Teaching (12 ECTS credits				
-	Experiments in Chemical Education	5	NUM	19
08-FD-Ch-BM-092-m01	Chemistry Education: Educational Theory and Models of Tea- ching Concepts	4	NUM	17
o8-FD-Schu-	Concepts of Teaching Chemistry	3	NUM	21
lUms-092-m01	concepts of reaching chemistry	J	Nom	21
ect-specific electives) (Section o achieve the required numb	ist take modules worth a total of 15 ECTS credits in the area Freie on 9 LASPO (general academic and examination regulations for t per of ECTS credits, students may take any modules from the are ary: The interdisciplinary additional offer for a teaching degree of	eaching-de as below.	egree program	nes)).
ect-specific electives) (Sectic o achieve the required numb reier Bereich interdisciplin tex "Ergänzende Bestimmung Subject-specific Extra Skills	on 9 LASPO (general academic and examination regulations for t ber of ECTS credits, students may take any modules from the are ary: The interdisciplinary additional offer for a teaching degree of gen für den "Freien Bereich" im Rahmen des Studiums für ein Le	eaching-de as below. :an be four	egree program	nes)).
ect-specific electives) (Section o achieve the required numb reier Bereich interdisciplin tex "Ergänzende Bestimmung <b>Subject-specific Extra Skills</b> (Freier Bereich (general as w	on 9 LASPO (general academic and examination regulations for t ber of ECTS credits, students may take any modules from the are lary: The interdisciplinary additional offer for a teaching degree of gen für den "Freien Bereich" im Rahmen des Studiums für ein Le s vell as subject-specific electives) subject specific)	eaching-de as below. an be four hramt".	egree programi	nes)). ctive A
ect-specific electives) (Sectic o achieve the required numb reier Bereich interdisciplin tex "Ergänzende Bestimmung <b>Subject-specific Extra Skills</b> (Freier Bereich (general as w 03-TR-072-m01	on 9 LASPO (general academic and examination regulations for t ber of ECTS credits, students may take any modules from the are ary: The interdisciplinary additional offer for a teaching degree of gen für den "Freien Bereich" im Rahmen des Studiums für ein Le rell as subject-specific electives) subject specific) Toxicology and legal studies	eaching-de as below. an be four hramt". 3	egree programi nd in the respen	nes)). ctive A
ect-specific electives) (Section o achieve the required numb reier Bereich interdisciplin ex "Ergänzende Bestimmung <b>Subject-specific Extra Skills</b> (Freier Bereich (general as w	on 9 LASPO (general academic and examination regulations for t ber of ECTS credits, students may take any modules from the are ary: The interdisciplinary additional offer for a teaching degree of gen für den "Freien Bereich" im Rahmen des Studiums für ein Le vell as subject-specific electives) subject specific) Toxicology and legal studies Physical Chemistry 4: Statistical Thermodynamics Physical and Theoretical Chemistry 3: Symmetry and Quantum	eaching-de as below. an be four hramt".	egree programi	nes)). ctive A
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ect-specific electives) (Sectic o achieve the required numb reier Bereich interdisciplin ex "Ergänzende Bestimmung <b>Subject-specific Extra Skills</b> (Freier Bereich (general as w 03-TR-072-m01 08-PC4-092-m01 08-PC3-092-m01 08-OC-Spec-LAGY-092- m01 08-AC2-PS-LA-102-m01	on 9 LASPO (general academic and examination regulations for t ber of ECTS credits, students may take any modules from the are ary: The interdisciplinary additional offer for a teaching degree of gen für den "Freien Bereich" im Rahmen des Studiums für ein Le vell as subject-specific electives) subject specific) Toxicology and legal studies Physical Chemistry 4: Statistical Thermodynamics Physical and Theoretical Chemistry 3: Symmetry and Quantum Chemistry Practical spectroscopy 1 (teaching degree for secondary schools) Practical spectroscopy 2 (teaching degree for secondary schools)	eaching-de as below. an be four hramt". 3 3 6 3 3	egree program nd in the respective NUM NUM NUM NUM	nes)). ctive A 5 36 34 33 9
ect-specific electives) (Sectic o achieve the required numb reier Bereich interdisciplin ex "Ergänzende Bestimmung <b>Subject-specific Extra Skills</b> (Freier Bereich (general as w 03-TR-072-m01 08-PC4-092-m01 08-PC3-092-m01 08-OC-Spec-LAGY-092- m01 08-AC2-PS-LA-102-m01 08-AC2-LAGY-102-m01	on 9 LASPO (general academic and examination regulations for t ber of ECTS credits, students may take any modules from the are ary: The interdisciplinary additional offer for a teaching degree of gen für den "Freien Bereich" im Rahmen des Studiums für ein Le vell as subject-specific electives) subject specific) Toxicology and legal studies Physical Chemistry 4: Statistical Thermodynamics Physical and Theoretical Chemistry 3: Symmetry and Quantum Chemistry Practical spectroscopy 1 (teaching degree for secondary schools) Practical spectroscopy 2 (teaching degree for secondary schools) Inorganic Chemistry of the Elements (teaching degree for se- condary schools) Elemental Organic Chemistry (teaching degree for secondary	eaching-de as below. an be four hramt". 3 3 6 3 3 3	egree program nd in the respective NUM NUM NUM NUM	nes)). ctive A 5 36 34 33 9 8
ect-specific electives) (Sectic o achieve the required numb reier Bereich interdisciplin ex "Ergänzende Bestimmung <b>Subject-specific Extra Skills</b> (Freier Bereich (general as w 03-TR-072-m01 08-PC4-092-m01 08-PC3-092-m01 08-OC-Spec-LAGY-092- m01 08-AC2-PS-LA-102-m01 08-AC2-LAGY-102-m01 08-AC3-LA-102-m01	on 9 LASPO (general academic and examination regulations for t ber of ECTS credits, students may take any modules from the are ary: The interdisciplinary additional offer for a teaching degree of gen für den "Freien Bereich" im Rahmen des Studiums für ein Le vell as subject-specific electives) subject specific) Toxicology and legal studies Physical Chemistry 4: Statistical Thermodynamics Physical and Theoretical Chemistry 3: Symmetry and Quantum Chemistry Practical spectroscopy 1 (teaching degree for secondary schools) Practical spectroscopy 2 (teaching degree for secondary schools) Inorganic Chemistry of the Elements (teaching degree for se- condary schools) Elemental Organic Chemistry (teaching degree for secondary schools)	eaching-de as below. an be four hramt". 3 3 6 3 3 3 3 4	egree program nd in the respective NUM NUM NUM NUM NUM	nes)). ctive A 5 36 34 33 9 8 8 10
ect-specific electives) (Sectic o achieve the required numb reier Bereich interdisciplin ex "Ergänzende Bestimmung <b>Subject-specific Extra Skills</b> (Freier Bereich (general as w 03-TR-072-m01 08-PC4-092-m01 08-PC3-092-m01 08-OC-Spec-LAGY-092- m01 08-AC2-PS-LA-102-m01 08-AC2-LAGY-102-m01 08-AC2-LAGY-102-m01 08-AC3-LA-102-m01	on 9 LASPO (general academic and examination regulations for t ber of ECTS credits, students may take any modules from the are ary: The interdisciplinary additional offer for a teaching degree of gen für den "Freien Bereich" im Rahmen des Studiums für ein Le vell as subject-specific electives) subject specific) Toxicology and legal studies Physical Chemistry 4: Statistical Thermodynamics Physical and Theoretical Chemistry 3: Symmetry and Quantum Chemistry Practical spectroscopy 1 (teaching degree for secondary schools) Practical spectroscopy 2 (teaching degree for secondary schools) Inorganic Chemistry of the Elements (teaching degree for se- condary schools) Elemental Organic Chemistry (teaching degree for secondary schools) Preparation of Exams Chemistry	eaching-de as below. an be four hramt". 3 3 6 3 3 3 4 5	egree program nd in the respective NUM NUM NUM NUM NUM NUM B/NB	nes)). ctive A 5 36 34 33 9 8 10 15
ect-specific electives) (Sectic o achieve the required numb reier Bereich interdisciplin ex "Ergänzende Bestimmung <b>Subject-specific Extra Skills</b> (Freier Bereich (general as w 03-TR-072-m01 08-PC4-092-m01 08-PC3-092-m01 08-OC-Spec-LAGY-092- m01 08-AC2-PS-LA-102-m01 08-AC2-LAGY-102-m01 08-AC3-LA-102-m01 08-FBC2-PV-101-m01 08-OC4-LAGY-102-m01	on 9 LASPO (general academic and examination regulations for t ber of ECTS credits, students may take any modules from the are ary: The interdisciplinary additional offer for a teaching degree of gen für den "Freien Bereich" im Rahmen des Studiums für ein Le vell as subject-specific electives) subject specific) Toxicology and legal studies Physical Chemistry 4: Statistical Thermodynamics Physical and Theoretical Chemistry 3: Symmetry and Quantum Chemistry Practical spectroscopy 1 (teaching degree for secondary schools) Practical spectroscopy 2 (teaching degree for secondary schools) Inorganic Chemistry of the Elements (teaching degree for se- condary schools) Elemental Organic Chemistry (teaching degree for secondary schools) Preparation of Exams Chemistry Organic Chemistry 4 - advanced course	eaching-de as below. an be four hramt". 3 3 6 3 3 3 3 4 5 5 5	egree program nd in the respective NUM NUM NUM NUM NUM NUM B/NB NUM	nes)). ctive A 5 36 34 33 9 8 10 15 31

 

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WÜRZBURG	Cher	nistry
TOREBORG	LA Hauptsch	nulen

Thesis (10 ECTS credits)				
08-0C3-LA-102-m01	Organic Chemistry 3 (teaching degree for secondary schools)	6	NUM	30
08-TC-LA-092-m01	Theoretical Models in Chemistry (teaching degree for seconda- ry schools)	3	NUM	40
08-PC-ESS-092-m01	Electronic structure and spectroscopy	3	NUM	37

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 Hauptschu-le may write this thesis in the subject Didaktik einer Fächergruppe der Hauptschule (Didactics of a Group of Subjects of Haupt-schule), 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. o8-Ch-HA-UF-HS-092-mo1 Admission work (Chemistry for Secondary School Teachers) NUM 10 14

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Module	e title				Abbreviation	
Toxico	logy an	d legal studies			03-TR-072-m01	
Module	e coord	inator		Module offered by		
lecture	r of lect	ure "Toxikologie und Re	chtskunde"	Faculty of Medicine		
ECTS		od of grading	Only after succ. con	pl. of module(s)		
3		rical grade		1		
Duratio	·	Module level	Other prerequisites			
1 seme		undergraduate				
Conten	ts	-				
Basics toxicol	-	l regulations for chemist	s (handling and trans	portation of hazardo	us materials), funda	mentals of
Intend	ed learı	ning outcomes				
The stu	idents i	master the basics of lega the fundamentals of to:		nists (handling and t	ransport of hazardo	us substan-
Course	s (type	, number of weekly conta	act hours, language –	· if other than Germa	n)	
		mation on SWS (weekly				
		essment (type, scope, la on on whether module c			tion offered — if not	every seme-
written	exami	nation (approx. 90 minut	es)			
Allocat	ion of p	olaces				
Additio	nal inf	ormation				
Auuitio						
 Workla						
Teachi	ng cycl	2	-			
		•				
Referre	ed to in	LPOI (examination regu	llations for teaching-	legree programmes)		
		ζ U		<u> </u>		
Module	e appea	irs in				
Bachel	or' deg	ree (1 major) Biochemist	ry (2011)			
	-	ree (1 major) Biochemist	•			
Bachel	or' deg	ree (1 major) Biochemist	ry (2009)			
Bachel	or' deg	ree (1 major) Chemistry (	2007)			
Bachel	or' deg	ree (1 major) Chemistry (	2008)			
Bachel	or' deg	ree (1 major) Chemistry (	2010)			
Bachel	or' deg	ree (1 major) Chemistry (	2009)			
Bachel	or' deg	ree (1 major) Food Chem	istry (2009)			
Bachel	or' deg	ree (1 major) FOKUS Che	mistry (2011)			
Master	's degre	ee (1 major) Chemistry (2	.013)			
Master	's degre	ee (1 major) Chemistry (2	.010)			
Master	's degre	ee (1 major) Chemistry (2	.014)			
First st	ate exa	mination for the teaching	g degree Grundschule	Chemistry (2009)		
First st	ate exa	mination for the teaching	g degree Hauptschule	Chemistry (2009)		
First st	ate exa	mination for the teaching	g degree Realschule (	hemistry (2009)		
First st	ate exa	mination for the teaching	g degree Gymnasium	Chemistry (2009)		
First st	ate exa	mination for the teaching	g degree Mittelschule	Chemistry (2013)		
LA Hauptso	hulen Che	mistry (2009)		enerated 26-Aug-2024 • exan	-	page 5 / 40

Modul	e title				Abbreviation
Inorga	nic Che	mistry 1 (teaching degre	e)		08-AC1-LA-102-m01
Modul	e coord	inator		Module offered by	^
lecture Chemis		ture "Experimentalchemi	e" (Experimental	Institute of Inorgan	ic Chemistry
ECTS	Meth	od of grading	Only after succ. con	npl. of module(s)	
20	nume	rical grade			
Duratio	on	Module level	Other prerequisites		
1 seme	ester	undergraduate	By way of exception	, additional prerequ	isites are listed in the section on
			assessments.		
Contor	te				

#### Contents

This module provides students with an overview of the fundamental principles of chemistry. It focuses on particles, metals, acid-base reactions, the periodic table, chemical equilibrium and complexometry. In addition, the module introduces fundamental models of chemistry and principles of inorganic chemistry. It includes practical exercises based on the lecture on experimental chemistry and its extension. After a safety briefing, the students autonomously conduct experiments in the laboratory. The course focuses on laboratory safety, simple lab techniques, the synthesis of simple substances and analyses of unknown substances. In addition, students have the opportunity to advance their laboratory knowledge.

#### Intended learning outcomes

Students are able to explain the principles of the periodic table and to extract information from it. They are able to explain basic models of the structure of matter. They have developed the ability to use the language of chemical formulas to describe chemical reactions and to interpret them by identifying the type of reaction. Students are able to describe the main quantitative and qualitative analytical methods and their application areas. They are able to identify fundamental problems in chemistry and perform experiments to solve them. They have developed the ability to perform the necessary stoichiometric calculations and describe the chemical processes in an appropriate manner, both in written and oral form.

**Courses** (type, number of weekly contact hours, language — if other than German)

This module comprises 3 module components. Information on courses will be listed separately for each module component.

- 08-AC1-1-102: V + V + Ü (no information on SWS (weekly contact hours) and course language available)
- 08-AC1-LA-2-102: P (no information on SWS (weekly contact hours) and course language available)
- 08-AC1-LA-3-102: V (no information on SWS (weekly contact hours) and course language available)

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a 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-AC1-1-102:** Principles of Inorganic Chemistry Principles of Inorganic Chemistry Principles of Inorganic Chemistry

- 10 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
- Other prerequisites: Admission prerequisite to assessment: successful completion of exercises in the respective classes as specified at the beginning of the course (usually 70% of exercises to be successfully completed) as well as regular attendance of exercises (usually a maximum of 2 incidents of unexcused absence).

Assessment in module component o8-AC1-LA-2-102: Inorganic and Analytical Chemistry (lab) (teaching degree)

• 7 ECTS, Method of grading: (not) successfully completed

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- 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

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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)

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Module					Abbreviation
Inorga	nic Che	mistry of the Elements	(teaching degree for	secondary schools)	08-AC2-LAGY-102-m01
Module	e coord	inator		Module offered by	<u> </u>
lecture	r of lec	ture "Festkörperchemie	" (Solid State Che-	Institute of Inorgan	ic Chemistry
mistry)	r		-		
ECTS	1	od of grading	Only after succ. co	mpl. of module(s)	
3	I	rical grade			
Duratio		Module level	Other prerequisite	S	
1 seme		undergraduate			
Conten					
					d saline compounds. It focuses
		ures and properties, sp	ecial material classes	s, reactivity and techn	lical processes.
		ning outcomes			
		able to describe the str r. They are able to syste			saline compounds in an appro- and reactivity.
Course	<b>s</b> (type	, number of weekly con	tact hours, language	— if other than Germa	ın)
V (no ir	nformat	tion on SWS (weekly co	ntact hours) and cour	se language available	2)
Metho	d of ass	sessment (type, scope,	language — if other th	nan German, examina	tion offered — if not every seme
ster, in	formati	ion on whether module	can be chosen to ear	n a bonus)	
					tten examinations: approx. 60
					l examination of one candidate
		20 minutes) or c) oral ( ssessment: German or		s (groups of 2, approx	. 30 minutes)
Allocat					
Additio	nalinf	ormation			
Auuilio	nat illi	ormation			
Worklo	ad				
			_		
Teachi	ng cycl	e			
Referre	ed to in	LPOI (examination reg	gulations for teaching	-degree programmes)	
§ 62 (1)	) 1. Che	emie "Allgemeine und A	norganische Chemie"	; "Physikalische und .	Analytische Chemie"
Module	e appea	ars in			
		mination for the teachi			
					stry (Primary School) (2009)
		mination for the teachi	,		star (Casandam, Cabaal) (aa)
		mination for the teachi	,		stry (Secondary School) (2009)
		mination for the teachi			
					hemistry (Secondary School)
(2009)					
					hemistry (Middle School) (2013)
		mination for the teachi			
Firct ct:	ate exa	mination for the teachi	ng degree Mittelschul	o Didactics in Chemis	the (Middle School) (2012)

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D	e title				Abbreviation
Practical spectroscopy 2 (teaching degree for secondary s Module coordinator			gree for secondary so	hools)	08-AC2-PS-LA-102-m01
Module	e coord	inator		Module offered by	·
lecture	r of lec	ture "Praktische Spektros	kopie 2"	Institute of Inorgan	ic Chemistry
ECTS	Methe	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	ts				
		quips students with an a ures and properties, spe			d saline compounds. It focuses iical processes.
Intende	ed lear	ning outcomes			
priate r	nannei		opic methods that ca		saline compounds in an appro- uctural analysis of solids and can
Course	<b>s</b> (type	, number of weekly conta	ict hours, language –	- if other than Germa	an)
V (no ir	nforma	tion on SWS (weekly cont	act hours) and cours	e language available	2)
		sessment (type, scope, la ion on whether module c			tion offered — if not every seme-
a) $1$ to $2$					
or 90 m each (a	ninutes approx.		tions: approx. 60 mir amination in groups	x. 90 minutes; 2 wri nutes each) or b) ora	tten examinations: approx. 60 l examination of one candidate . 30 minutes)
or 90 m each (a	ninutes approx. age of a	each; 3 written examina 20 minutes) or c) oral ex ssessment: German or E	tions: approx. 60 mir amination in groups	x. 90 minutes; 2 wri nutes each) or b) ora	l examination of one candidate
or 90 m each (a Langua	ninutes approx. age of a	each; 3 written examina 20 minutes) or c) oral ex ssessment: German or E	tions: approx. 60 mir amination in groups	x. 90 minutes; 2 wri nutes each) or b) ora	l examination of one candidate
or 90 m each (a Langua Allocat	ninutes approx. age of a <b>ion of </b>	each; 3 written examina 20 minutes) or c) oral ex ssessment: German or E	tions: approx. 60 mir amination in groups	x. 90 minutes; 2 wri nutes each) or b) ora	l examination of one candidate
or 90 m each (a Langua Allocat	ninutes approx. age of a <b>ion of </b>	each; 3 written examina 20 minutes) or c) oral ex ssessment: German or E <b>blaces</b>	tions: approx. 60 mir amination in groups	x. 90 minutes; 2 wri nutes each) or b) ora	l examination of one candidate
or 90 m each (a Langua Allocat	ninutes approx. age of a <b>ion of j</b>	each; 3 written examina 20 minutes) or c) oral ex ssessment: German or E <b>blaces</b>	tions: approx. 60 mir amination in groups	x. 90 minutes; 2 wri nutes each) or b) ora	l examination of one candidate
or 90 m each (a Langua Allocat  Additio	ninutes approx. age of a <b>ion of j</b>	each; 3 written examina 20 minutes) or c) oral ex ssessment: German or E <b>blaces</b>	tions: approx. 60 mir amination in groups	x. 90 minutes; 2 wri nutes each) or b) ora	l examination of one candidate
or 90 m each (a Langua Allocat  Additio  Worklo 	ninutes approx. ge of a ion of p nal inf	each; 3 written examina 20 minutes) or c) oral ex ssessment: German or E <b>blaces</b> ormation	tions: approx. 60 mir amination in groups	x. 90 minutes; 2 wri nutes each) or b) ora	l examination of one candidate
or 90 m each (a Langua Allocat  Additio	ninutes approx. ge of a ion of p nal inf	each; 3 written examina 20 minutes) or c) oral ex ssessment: German or E <b>blaces</b> ormation	tions: approx. 60 mir amination in groups	x. 90 minutes; 2 wri nutes each) or b) ora	l examination of one candidate
or 90 m each (a Langua Allocat  Additio  Worklo  Teachin 	ninutes approx. age of a ion of p onal inf pad	each; 3 written examina 20 minutes) or c) oral ex ssessment: German or E <b>blaces</b> ormation	tions: approx. 60 mir amination in groups nglish	x. 90 minutes; 2 wrin nutes each) or b) ora (groups of 2, approx	l examination of one candidate . 30 minutes)
or 90 m each (a Langua Allocat  Additio  Worklo  Teachin 	ninutes approx. age of a ion of p onal inf pad	each; 3 written examina 20 minutes) or c) oral ex ssessment: German or E <b>blaces</b> ormation	tions: approx. 60 mir amination in groups nglish	x. 90 minutes; 2 wrin nutes each) or b) ora (groups of 2, approx	l examination of one candidate . 30 minutes)
or 90 m each (a Langua Allocat  Additio  Worklo  Teachin  Referre	ninutes approx. age of a ion of p onal inf bad	each; 3 written examina 20 minutes) or c) oral ex ssessment: German or E blaces ormation e LPOI (examination regu	tions: approx. 60 mir amination in groups nglish	x. 90 minutes; 2 wrin nutes each) or b) ora (groups of 2, approx	l examination of one candidate . 30 minutes)
or 90 m each (a Langua Allocat  Worklo  Teachin  Referre  Module	ninutes approx. age of a ion of p mal inf ad ng cycl ed to in	each; 3 written examina 20 minutes) or c) oral ex ssessment: German or E places ormation e LPOI (examination regu	tions: approx. 60 mir amination in groups nglish	x. 90 minutes; 2 writ nutes each) or b) ora (groups of 2, approx	l examination of one candidate . 30 minutes)
or 90 m each (a Langua Allocat  Worklo  Teachin  Referre  First sta	ninutes approx. age of a ion of p onal inf onal inf onal inf ead ed to in e appea ate exa	each; 3 written examina 20 minutes) or c) oral ex ssessment: German or E blaces ormation e LPOI (examination regu	tions: approx. 60 mir amination in groups nglish lations for teaching-o g degree Grundschule	x. 90 minutes; 2 writ nutes each) or b) ora (groups of 2, approx degree programmes) e Chemistry (2009)	l examination of one candidate . 30 minutes)
or 90 m each (a Langua Allocat  Additio  Worklo  Teachin  Referre  First sta First sta	ninutes approx. age of a ion of p onal inf bad ng cycl ed to in e appea ate exa ate exa	each; 3 written examina 20 minutes) or c) oral ex ssessment: German or E blaces ormation e LPO I (examination regu	tions: approx. 60 mir amination in groups nglish lations for teaching-o g degree Grundschule g degree Hauptschule	x. 90 minutes; 2 writh nutes each) or b) ora (groups of 2, approx degree programmes) e Chemistry (2009)	l examination of one candidate . 30 minutes)
or 90 m each (a Langua Allocat  Worklo  Teachin  Referre  First sta First sta First sta First sta	ninutes approx. age of a ion of p mal inf ad ad ad ad ad at e exa ate exa ate exa ate exa ate exa ate exa	each; 3 written examina 20 minutes) or c) oral ex ssessment: German or E olaces ormation e LPO I (examination regu ars in mination for the teaching mination for the teaching	tions: approx. 60 mir amination in groups nglish lations for teaching-o g degree Grundschule g degree Hauptschule g degree Realschule O g degree Gymnasium	x. 90 minutes; 2 writh nutes each) or b) ora (groups of 2, approx degree programmes) e Chemistry (2009) Chemistry (2009) Chemistry (2009)	l examination of one candidate . 30 minutes)

Module t	itle			Abbreviation
Elementa	l Organic Chemistry (teachin	g degree for seconda	ry schools)	08-AC3-LA-102-m01
Modulo c	oordinator		Module offered by	
	f lecture "Elementorganische	Chamia" (Elamontal		ic Chamistry
	hemistry)	Chenne (Elenientai	institute of morgan	ic chemistry
ECTS N	Nethod of grading	Only after succ. com		
4 n	umerical grade		•	nly) and o8-OC3 (module compo-
nent o8-OC3-2 only)				
Duration	Module level	Other prerequisites	•	
1 semest	1 semester undergraduate Admission prerequisite to assessment: successful completion or ses in the respective classes as specified at the beginning of the (usually 70% of exercises to be successfully completed) as well lar attendance of exercises (usually a maximum of 2 incidents of sed absence).		d at the beginning of the course fully completed) as well as regu-	
Contents	·	•		
	ule equips students with an a s, special material classes, re			It focuses on their structures and
Intended	learning outcomes			
explain p Courses ( V + Ü (no Method c ster, info a) 1 to 3 v	rinciples for the synthesis of (type, number of weekly conta information on SWS (weekly of assessment (type, scope, la rmation on whether module c written examinations (1 written	elementary organic co act hours, language — contact hours) and co anguage — if other tha an be chosen to earn n examination: appro.	ompounds. if other than Germa ourse language avail an German, examina a bonus) x. 90 minutes; 2 writ	able) tion offered — if not every seme- tten examinations: approx. 60
each (app	utes each; 3 written examina prox. 20 minutes) or c) oral ex e of assessment: German, Eng	amination in groups		l examination of one candidate . 30 minutes)
Allocatio	n of places			
Additiona	al information			
Workload				
 Teaching	cvcle			
	-,			
Referred	to in LPO I (examination regu	llations for teaching-c	legree programmes)	
			<u> </u>	
Module a	ppears in			
	e examination for the teaching	g degree Grundschule	Chemistry (2009)	
First state First state	e examination for the teaching e examination for the teaching e examination for the teaching	g degree Hauptschule g degree Realschule C	Chemistry (2009) hemistry (2009)	
	e examination for the teaching			

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	cord Lehramt Hauptschulen (Unterrichtsfach) Chemie - 2009	

Modul	e title				Abbreviation		
Bioche	emistry	(teaching degree for se	condary schools)		08-BC-GHR-092-m	01	
Modul	e coord	inator		Module offered by			
holder	of the (	Chair of Biochemistry		Chair of Biochemis	trv		
ECTS	1	od of grading	Only after succ. cor		- )		
4	_	rical grade					
Durati		Module level	Other prerequisites	•			
1 seme	-	undergraduate			successful completi	on of exerci-	
1 Senit		understaddate		Admission prerequisite to assessment: successful completion of exerci- ses in the respective classes as specified at the beginning of the course			
				rcises to be success			
				ercises (usually a ma		-	
			sed absence).	Cercises (usually a m		LS OF UTTEACU-	
Canta		L	sed absence).				
Conte							
Compr mistry	-	ctures and exercises, th	is module acquaints s	students with the fun	damental principles	of bioche-	
Intend	led lear	ning outcomes					
		e become familiar with t cal processes in cellula		iples of biochemistry	. They are able to de	scribe the	
<b>Courses</b> (type, number of weekly contact hours, language — if other than German)							
V + Ü (	no info	rmation on SWS (weekly	/ contact hours) and c	ourse language avail	able)		
		sessment (type, scope,				everv seme-	
		ion on whether module					
a) 1 to	3 writte	n examinations (1 writt	en examination: appro	ox. 90 minutes; 2 writ	ten examinations: 6	o or 90 mi-	
nutes	each; 3	written examinations: 6	60 minutes each) or b)	oral examination of			
		oral examination in gro		rox. 30 minutes)			
		ssessment: German or	English				
Alloca	tion of <b>j</b>	olaces					
Additi	onal inf	ormation					
Workle	oad						
Teachi	ing cycl	e					
Referr	ed to in	LPO I (examination reg	ulations for teaching-	degree programmes)			
§ 42 (1	.) 2. Che	emie "Organische und B	ioorganische Chemie'				
	le appea	<u> </u>					
		mination for the teaching	ag dogroo Grundschul	o Chomistry (2000)			
		mination for the teaching			stry (Primary School)	(2000)	
		mination for the teaching			Stry (i filling School)	(2009)	
		mination for the teaching	,		stry (Secondary Scho	ol) (2000)	
		mination for the teaching	,				
First st	tate exa	mination for the teaching			nemistry (Secondary	School)	
(2009) First st		mination for the teaching	na doaroo Sondornöda	gogik Didactics in C	nomistry (Middle Sel	(201)	
		mination for the teaching	,			1001) (2013)	
		mination for the teaching			try (Middle School)	(2013)	
		emistry (2009)		enerated 26-Aug-2024 • exan	•	page 11 / 40	
	end of the			iptschulen (Unterrichtsfach) (		P	

Module title			Abbreviation			
Exercis	<b>Exercises in Experimental Presentation</b> 08-Ch-GH-ÜiV-092-mo1				m01	
Module	e coord	inator		Module offered by	<u> </u>	
lecture	rs of th	e three lectures offered	l in this module	Faculty of Chemistr	y and Pharmacy	
ECTS	-	od of grading	Only after succ. con	•	, ,	
6	(not) s	successfully completed				
Duratio	on	Module level	Other prerequisites	i		
1 seme	ster	undergraduate				
Contents						
		design, prepare and de ionstrations.	liver presentations on	a range of topics in c	chemistry. Presentat	ions will in-
Intend	ed lear	ning outcomes				
the spe particu	ecific ne lar tead	eds of their audience.	ed and scientifically cor They are able to select plan and safely perfor their teaching skills.	experiments on the	topic in question the	at support a
Course	<b>s</b> (type	, number of weekly cor	itact hours, language –	- if other than Germa	ın)	
compo • c • c	<ul> <li>This module comprises 3 module components. Information on courses will be listed separately for each module component.</li> <li>o8-Ch-LA-ÜiV-1-092: Ü (no information on SWS (weekly contact hours) and course language available)</li> <li>o8-Ch-LA-ÜiV-2-092: Ü (no information on SWS (weekly contact hours) and course language available)</li> </ul>				vailable) vailable)	
			language — if other th can be chosen to earn		tion offered — if not	every seme-
low. Ur		ated otherwise, succes	es the assessments in t sful completion of the			
mistry) • 2 • t • A • L Assess mistry)	e ECTS, alk with Assessn anguag <b>ment i</b>	Method of grading: (no n demonstrations (app nent offered: once a ye ge of assessment: Gern <b>n module component o</b>	ar, winter semester nan or English <b>8-Ch-LA-ÜiV-2-092:</b> Ex	ted ercises in Experimen		
<ul> <li>2 ECTS, Method of grading: (not) successfully completed</li> <li>talk with demonstrations (approx. 45 minutes)</li> <li>Assessment offered: once a year, winter semester</li> <li>Language of assessment: German or English</li> </ul> Assessment in module component o8-Ch-GH-ÜiV-3-o92: Exercises in Experimental Presentation (Physical Chemistry) for Primary School and Secondary Public School Teachers <ul> <li>2 ECTS, Method of grading: (not) successfully completed</li> <li>talk with demonstrations (approx. 45 minutes)</li> <li>Assessment offered: once a year, winter semester</li> <li>Language of assessment: German or English</li></ul>						
Allocat	ion of p	olaces				
Additio	onal inf	ormation				
LA Hauptso	chulen Che	emistry (2009)		enerated 26-Aug-2024 • exan ptschulen (Unterrichtsfach) C	-	page 12 / 40

#### Workload

#### Teaching cycle

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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)

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	cord Lehramt Hauptschulen (Unterrichtsfach) Chemie - 2009	

Module	e title				Abbreviation
Admiss	sion wo	ork (Chemistry for Secor	ndary School Teachers	;)	08-Ch-HA-UF-HS-092-m01
Modul	e coord	linator		Module offered by	1
head o	nead of the research group offering the module		Faculty of Chemistr	y and Pharmacy	
ECTS	1	od of grading	Only after succ. compl. of module(s)		· · ·
10	nume	rical grade	Where applicable, specific modules/module components as spe supervisor.		dule components as specified by
Duratio	on	Module level	Other prerequisites		
1 seme	ster	undergraduate			
Conten	Its				
in cher	nistry c		ey have agreed upon	with an authorised e	tly research and write on a topic xaminer in accordance with the rammes).
Intend	ed lear	ning outcomes			
and an sions, an app	alyse a and off ropriat	problem, conduct a lite er approaches to the so e written account of the	erature search, refer to lution of said problem results of their work.	relevant theories, ir ) be able to work t	rite an academic paper (define hterpret data, draw logical conclu- o deadlines be able to prepare
Course	<b>s</b> (type	, number of weekly con	tact hours, language –	- if other than Germa	an)
no cou	rses as	signed			
		sessment (type, scope, ion on whether module			ation offered — if not every seme-
Langua	age of a	(Zulassungsarbeit, app assessment: German, ex ree programmes)		e with Section 29 LF	PO I (examination regulations for
Allocat	ion of	places			
Additio	onal inf	ormation			
Worklo	ad				
Teachi	ng cycl	e			
Referre	ed to in	LPOI (examination reg	ulations for teaching-	degree programmes)	
Modul	e appea	ars in			
		mination for the teachin			
First st	ate exa	mination for the teaching	ng degree Mittelschule	Chemistry (2013)	

Prepar	e title			Abbreviation	
	ation of Exams Chemistry			08-FBC2-PV-101-m01	
Modul	e coordinator		Module offered by		
lecture mistry)	rs Inorganic and Organisch	e Chemie (Organic Che-	Faculty of Chemistry	and Pharmacy	
ECTS	Method of grading	Only after succ. cor	npl. of module(s)		
5	(not) successfully complet		and o8-OC-Prakt-GHR or o8-OC2-LAGY and o8-OC-Prakt-		
Duratio	on Module level	Other prerequisites	5		
1 seme	ester undergraduate				
Conten	its				
	odule gives students the op ered on the state examinati			anic chemistry that are likely to	
Intend	ed learning outcomes				
	nts are able to solve selecte nation in previous years.	d questions on organic a	nd inorganic chemistr	y that were asked in the state	
Course	s (type, number of weekly o	contact hours, language -	– if other than Germa	n)	
compo • c	-	ormation on SWS (weekly	contact hours) and co		
	<b>d of assessment</b> (type, scop formation on whether mod			ion offered — if not every seme-	
10 . 01	ness stated otherwise, such		modulo will roduiro c	uccossful completion of all indi-	
vidual Assess 2 5 6 7 4 L Assess 3 5 5 6 7	assessments. ment in module componen ECTS, Method of grading: Successful participation in t Assessment offered: once a Language of assessment: Go ment in module componen B ECTS, Method of grading: Successful participation in t Assessment offered: once a	t o8-FBC2-PV-1-101: Prep (not) successfully comple he form of short presenta year, summer semester erman or English t o8-FBC2-PV-2-101: Prep (not) successfully comple he form of short presenta year, summer semester	aration of Exams Inor ted tions on selected ass paration of Exams Orgated	ignments anic Chemistry	
vidual Assess • 2 • s • A • L Assess • 3 • s • A • L	assessments. ment in module componen ECTS, Method of grading: successful participation in t Assessment offered: once a anguage of assessment: Ge ment in module componen BECTS, Method of grading: successful participation in t Assessment offered: once a anguage of assessment: Ge	t o8-FBC2-PV-1-101: Prep (not) successfully comple he form of short presenta year, summer semester erman or English t o8-FBC2-PV-2-101: Prep (not) successfully comple he form of short presenta year, summer semester	aration of Exams Inor ted tions on selected ass paration of Exams Orgated	ganic Chemistry ignments anic Chemistry	
vidual Assess • 2 • 3 • 4 Assess • 4 • 3 • 5 • 4 • 4 • 4	assessments. ment in module componen ECTS, Method of grading: Successful participation in t Assessment offered: once a Language of assessment: Go ment in module componen B ECTS, Method of grading: Successful participation in t Assessment offered: once a	t o8-FBC2-PV-1-101: Prep (not) successfully comple he form of short presenta year, summer semester erman or English t o8-FBC2-PV-2-101: Prep (not) successfully comple he form of short presenta year, summer semester	aration of Exams Inor ted tions on selected ass paration of Exams Orgated	ganic Chemistry ignments anic Chemistry	
vidual Assess Assess Assess Assess A Assess A A Allocat	assessments. ment in module componen ECTS, Method of grading: successful participation in t Assessment offered: once a anguage of assessment: Ge ment in module componen BECTS, Method of grading: successful participation in t Assessment offered: once a anguage of assessment: Ge	t o8-FBC2-PV-1-101: Prep (not) successfully comple he form of short presenta year, summer semester erman or English t o8-FBC2-PV-2-101: Prep (not) successfully comple he form of short presenta year, summer semester	aration of Exams Inor ted tions on selected ass paration of Exams Orgated	ganic Chemistry ignments anic Chemistry	
vidual Assess 2 3 4 4 Assess 4 4 4 Allocat  Additic 	assessments. ment in module componen ECTS, Method of grading: Successful participation in t Assessment offered: once a Language of assessment: Ge ment in module componen BECTS, Method of grading: Successful participation in t Assessment offered: once a Language of assessment: Ge tion of places	t o8-FBC2-PV-1-101: Prep (not) successfully comple he form of short presenta year, summer semester erman or English t o8-FBC2-PV-2-101: Prep (not) successfully comple he form of short presenta year, summer semester	aration of Exams Inor ted tions on selected ass paration of Exams Orgated	ganic Chemistry ignments anic Chemistry	
vidual Assess a b c c c c c c c c c c c c c	assessments. ment in module componen ECTS, Method of grading: Successful participation in t Assessment offered: once a Language of assessment: Ge ment in module componen BECTS, Method of grading: Successful participation in t Assessment offered: once a Language of assessment: Ge tion of places	t o8-FBC2-PV-1-101: Prep (not) successfully comple he form of short presenta year, summer semester erman or English t o8-FBC2-PV-2-101: Prep (not) successfully comple he form of short presenta year, summer semester	aration of Exams Inor ted tions on selected ass paration of Exams Orgated	ganic Chemistry ignments anic Chemistry	
vidual Assess a 2 b 2 c 2 c 4 c 4 Assess a 3 c 5 c 4 c 4 Allocat c Worklo 	assessments. ment in module componen ECTS, Method of grading: Successful participation in t Assessment offered: once a Language of assessment: Ge ment in module componen BECTS, Method of grading: Successful participation in t Assessment offered: once a Language of assessment: Ge tion of places	t o8-FBC2-PV-1-101: Prep (not) successfully comple he form of short presenta year, summer semester erman or English t o8-FBC2-PV-2-101: Prep (not) successfully comple he form of short presenta year, summer semester	aration of Exams Inor ted tions on selected ass paration of Exams Orgated	ganic Chemistry ignments anic Chemistry	
vidual Assess 2 5 4 L Assess 4 5 6 7 4 Allocat  Additic  Worklo  Teachi 	assessments. ment in module componen ECTS, Method of grading: Successful participation in t Assessment offered: once a Language of assessment: Ge ment in module componen BECTS, Method of grading: Successful participation in t Assessment offered: once a Language of assessment: Ge tion of places onal information	t o8-FBC2-PV-1-101: Prep (not) successfully complet he form of short presenta year, summer semester erman or English t o8-FBC2-PV-2-101: Prep (not) successfully complet he form of short presenta year, summer semester erman or English	aration of Exams Inor sted tions on selected ass paration of Exams Orgo ted tions on selected ass	ganic Chemistry ignments anic Chemistry	
vidual Assess a 2 b 3 c 4 c 4 Assess a 3 c 5 c 4 c 4 Allocat c - Worklo c - Teachi  Referre 	assessments. ment in module componen ECTS, Method of grading: Successful participation in t Assessment offered: once a Language of assessment: Ge ment in module componen B ECTS, Method of grading: Successful participation in t Assessment offered: once a Language of assessment: Ge tion of places ponal information pad	t o8-FBC2-PV-1-101: Prep (not) successfully complet he form of short presenta year, summer semester erman or English t o8-FBC2-PV-2-101: Prep (not) successfully complet he form of short presenta year, summer semester erman or English	aration of Exams Inor sted tions on selected ass paration of Exams Orgo ted tions on selected ass	ganic Chemistry ignments anic Chemistry	

First state examination for the teaching degree Grundschule Chemistry (2009) First state examination for the teaching degree Hauptschule Chemistry (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 Mittelschule Chemistry (2013)

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	cord Lehramt Hauptschulen (Unterrichtsfach) Chemie - 2009	

Module	title			Abbreviation	
Chemist	try Education: Educational T	heory and Models of Te	aching Concepts	08-FD-Ch-BM-092-r	m01
Module	coordinator		Module offered by	<u> </u>	
	of the Professorship of Didac	tics of Chemistry	Institute of Inorganic Chemistry		
	Method of grading	Only after succ. con	•		
	numerical grade		•		
Duratior	n Module level	Other prerequisites	i		
1 semes	ter undergraduate				
Content	S				
This mo	dule introduces students to	the fundamentals of ch	emistry didactics.		
Intende	d learning outcomes				
	s have become familiar with nework conditions of chemis		or teaching chemistry	/ as well as with the	objectives
Courses	(type, number of weekly co	ntact hours, language –	- if other than Germa	n)	
compon • o8	dule comprises 2 module co ent. 3-FD-Einf-1-092: V (no inform 3-FD-Ch-BM-2-092: S (no info	ation on SWS (weekly o	contact hours) and co	ourse language avail	able)
Method	of assessment (type, scope ormation on whether module	, language — if other th	an German, examina		
<ul> <li>La</li> <li>Assessm</li> <li>minar)</li> <li>1 E</li> <li>pr</li> </ul>	ritten examination (approx. 9 anguage of assessment: Gerr <b>nent in module component o</b> ECTS, Method of grading: (no resentation (approx. 20 minu anguage of assessment: Gerr	nan or English 9 <b>8-FD-Ch-BM-2-092:</b> Int ot) successfully comple Ites)		try Education (accon	npanying se
	on of places				
	· ·				
Additior	nal information				
Workloa	d				
Teachin	g cycle				
Referred	to in LPO I (examination re	gulations for teaching-	degree programmes)		
§ 36 (1) § 38 (1) § 38 (1) § 42 Che	7. Didaktik der Grundschule 1. Didaktik der Hauptschule 1. Didaktik der Mittelschule emie Fachdidaktik 6. Chemie Didaktik	Chemie Chemie			
Module	appears in				
A Hauptsch	ulen Chemistry (2009)		enerated 26-Aug-2024 • exan	-	page 17 / 40
		cord Lehramt Hau	ptschulen (Unterrichtsfach) (	.nemie - 2009	

First state examination for the teaching degree Grundschule Chemistry (2009) First state examination for the teaching degree Hauptschule Chemistry (2009) First state examination for the teaching degree Mittelschule Chemistry (2013)

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	cord Lehramt Hauptschulen (Unterrichtsfach) Chemie - 2009	

Module title			Abbreviation			
Experi	Experiments in Chemical Education 08-FD-ExUnt-092-mo1					01
Modul	e coord	inator		Module offered by		
holder	of the F	Professorship of Didacti	cs of Chemistry	Institute of Inorgani	ic Chemistry	
ECTS		od of grading	Only after succ. cor	npl. of module(s)		
5	nume	rical grade				
Durati		Module level	Other prerequisites	5		
1 seme	ester	undergraduate				
Conter	nts		_			
	This module equips students with experimental skills and teaches them how to incorporate experiments into their lessons.					
Intend	ed learr	ning outcomes				
le scho	ools and	e learned some essentia I have developed the ab nts, tailor them to their	oility to safely perform	them. They have dev	veloped the ability to	
Course	es (type	, number of weekly cont	act hours, language –	– if other than Germa	n)	
compo • (	onent. 58-FD-E	omprises 2 module com xUnt-1-092: Ü (no inforn xUnt-2-092: S (no inforr	nation on SWS (weekl	y contact hours) and	course language ava	ailable)
Metho	d of ass	essment (type, scope, l on on whether module	anguage — if other th	an German, examina		
low. Ur vidual Assess dary Pr • I Assess • I • I Alloca  Additio	nless st assessi sment ir ublic Sc 4 ECTS, oresenta anguag sment ir ECTS, I oresenta anguag tion of p	<b>module component of</b> hools Method of grading: num ation with demonstratio ge of assessment: Germ <b>module component of</b> Method of grading: num ation (approx. 20 minut ge of assessment: Germ	sful completion of the <b>G-FD-ExUnt-1-092:</b> Exp nerical grade n (approx. 30 minutes an or English <b>G-FD-ExUnt-2-092:</b> Pla erical grade es)	module will require s periments in Chemica s)	successful completic	on of all indi-
Worklo	oad					
Teachi	Teaching cycle					
Referr	ed to in	LPOI (examination reg	ulations for teaching-	degree programmes)		
§ 38 (1 § 38 (1	) 1. Dida ) 1. Dida	aktik der Grundschule C aktik der Hauptschule C aktik der Mittelschule C achdidaktik	hemie			
LA Haupts	chulen Che	mistry (2009)		enerated 26-Aug-2024 • exam	-	page 19 / 40

#### 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)

LA Hauptschulen Chemistry (2009)	JMU Würzburg • generated 26-Aug-2024 • exam. reg. data re-	page 20 / 40
	cord Lehramt Hauptschulen (Unterrichtsfach) Chemie - 2009	

Module	e title				Abbreviation
Concep	ots of T	eaching Chemistry			08-FD-SchulUms-092-m01
Module	e coord	inator		Module offered by	
holder	of the F	Professorship of Didactic	s of Chemistry	Institute of Inorgan	ic Chemistry
ECTS	Metho	od of grading	Only after succ. cor	npl. of module(s)	
3	nume	rical grade			
Duratio	n	Module level	Other prerequisites	i	
1 seme	ster	undergraduate			
Conten	ts				
Topics	covere	d in the chemistry curricu	ıla for Grundschule a	nd Hauptschule scho	ools and ways to teach them.
Intende	ed lear	ning outcomes			
sons. T classro	hey ha om on	ve developed the ability the basis of the relevant	to plan and teach les curricula.	sons in the Grundscl	nditions of chemistry les- hule or Hauptschule chemistry
		, number of weekly conta			
		tion on SWS (weekly cont			
		sessment (type, scope, la ion on whether module c			tion offered — if not every seme-
		approx. 20 minutes) ssessment: German or E	nglish		
Allocat	ion of p	olaces			
Additio	nal inf	ormation			
Worklo	ad				
Teachi	ng cycl	e			
Referre	d to in	LPOI (examination regu	lations for teaching-	degree programmes)	
§ 38 (1) § 38 (1)	1. Dida 1. Dida	aktik der Grundschule Ch aktik der Hauptschule Ch aktik der Mittelschule Ch Fachdidaktik	iemie		
Module	e appea	ars in			
First sta	ate exa	mination for the teaching mination for the teaching mination for the teaching	g degree Hauptschule	e Chemistry (2009)	

Module title Abbreviation						
Extracurricu	ar Sites			08-FD-WPF-LLL-092	-m01	
Module coor	dinator		Module offered by			
holder of the	Professorship of Didact	ics of Chemistry	Institute of Inorgani	ic Chemistry		
	nod of grading	Only after succ. con	npl. of module(s)			
4 (not	successfully completed					
Duration	Module level	Other prerequisites	i			
1 semester	undergraduate					
Contents						
This module	discusses the opportun	ities and limitations of	out-of-classroom lea	rning in chemistry.		
Intended learning outcomes						
activities in	able to plan chemistry school labs that support they perform experimen	their teaching goals. T				
Courses (typ	e, number of weekly cor	tact hours, language –	- if other than Germa	n)		
	comprises 2 module co				ach module	
component.						
	WPF-LLL-1-092: S (no inf WPF-LLL-2-092: P (no int					
	ssessment (type, scope, tion on whether module			tion offered — if not	every seme-	
Assessment in this module comprises the assessments in the individual module components as specified be- low. Unless stated otherwise, successful completion of the module will require successful completion of all indi- vidual 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 Allocation of places						
Additional in	formation					
Workload						
Teaching cy	le					
<b>Referred to in LPO I</b> (examination regulations for teaching-degree programmes)						
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)						
	amination for the teachi amination for the teachi	,		try (Secondary Scho	ol) (2000)	
LA Hauptschulen C			enerated 26-Aug-2024 • exam		page 22 / 40	
			ptschulen (Unterrichtsfach) C		puze 22 / 40	

#### Julius-Maximilians-UNIVERSITÄT WÜRZBURG

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)

LA Hauptschulen Chemistry (2009)	JMU Würzburg • generated 26-Aug-2024 • exam. reg. data re-	page 23 / 40
	cord Lehramt Hauptschulen (Unterrichtsfach) Chemie - 2009	

Modul	e title				Abbreviation
Prepa	ration o	f Exams (Primary and Sec	condary Public Schol	ll Teachers)	08-FD-WPF-PVGSHS-092-m01
Modul	e coord	linator		Module offered	l by
holder	r of the	Professorship of Didactics	s of Chemistry	Institute of Inor	ganic Chemistry
ECTS	Meth	od of grading	Only after succ. con	npl. of module(s)	)
2	nume	rical grade		•	
Durati	on	Module level	Other prerequisites	;	
1 seme	ester	undergraduate			
Conte	nts	·			
Stude	nts will	solve selected questions	that were asked in th	ne state examina	ation in previous years.
		ning outcomes			
			estions that were ask	ed in the state e	examination in previous years.
		, number of weekly conta			· ·
		tion on SWS (weekly cont			
•	-	. ,		<u> </u>	,
		ion on whether module ca			nination offered — if not every seme
		nation (approx. 30 minute			
	tion of	· · · · · · ·			
Alloca		places			
Additi	onal inf	ormation			
Workl	oad				
Teachi	ing cycl	e			
Referr	ed to in	LPOI (examination regu	lations for teaching-	degree programn	nes)
Modul	e appea	ars in			
First st	tate exa	mination for the teaching	g degree Grundschule	e Chemistry (200	9)
			-	-	emistry (Primary School) (2009)
First state examination for the teaching degree Hauptschule Chemistry (2009)					
					emistry (Secondary School) (2009)
First st (2009)		mination for the teaching	g degree Sonderpäda	gogik Didactics i	in Chemistry (Secondary School)
					in Chemistry (Middle School) (2013)
		mination for the teaching	-		
First st	tate exa	mination for the teaching	g degree Mittelschule	Didactics in Che	emistry (Middle School) (2013)

Module	e title				Abbreviation
Guidan	ce in S	elf-reliant Scientific Wor	k		08-FD-WPF-WA-092-m01
Module	coord	inator		Module offered by	
holder	of the F	Professorship of Didactic	s of Chemistry	Institute of Inorgan	ic Chemistry
ECTS		od of grading	Only after succ. com	-	
2	(not) s	successfully completed		-	
Duratio	n	Module level	Other prerequisites		
1 seme	ster	undergraduate			
Conten	ts				
This mo tics.	odule w	vill teach students how to	independently resea	arch and write on se	lected topics in chemistry didac-
Intende	ed learı	ning outcomes			
					emistry didactics. They are able to o advance the discipline.
Course	<b>s</b> (type	, number of weekly conta	ict hours, language –	· if other than Germa	an)
S (no ir	format	ion on SWS (weekly cont	act hours) and cours	e language available	2)
		essment (type, scope, la on on whether module ca			ition offered — if not every seme-
		approx. 30 minutes) ssessment: German or El	nglish		
Allocat	ion of p	olaces			
Additio	nal inf	ormation			
Worklo	ad				
Teachi	ng cycl	<b>e</b>	·		
	<u></u>	•			
Poforro	d to in	LPOI (examination regu	lations for teaching	legree programmes)	
Kelene					
Module					
		mination for the teaching	_		stry (Primary School) (2009)
		mination for the teaching			stry (Filliary School) (2009)
		-			stry (Secondary School) (2009)
		mination for the teaching			, (2000, 2009)
		mination for the teaching			
					hemistry (Secondary School)
	ate exa	mination for the teaching	g degree Sonderpäda	gogik Didactics in Cl	hemistry (Middle School) (2013)
		mination for the teaching	_	· · · –	
First sta	ate exa	mination for the teachinន្	g degree Mittelschule	Didactics in Chemis	stry (Middle School) (2013)

	Modul					Abbreviation	
Institute of Organic Chemistry         Institute of Organic Chemistry           ECTS         Method of grading         Only after succ. compl. of module(s)           6         numerical grade         -           1         Module level         Other prerequisites           1         semester         undergraduate         Admission prerequisite to assess as specified at the beginning of the course (usually 70% of exercises to be successfully completed) as well as regu- lar attendance of exercises (usually a maximum of 2 incidents of unexcu sed absence).           Contents         This module provides students with an overview of the fundamental principles of organic chemistry. It examines the bonding situation of carbon and introduces students to the nomenclature of simple and moderately complete organic compounds. The module also discusses the fundamental principles of stereochemistry, substitution, ad dition and elimination reactions as well as synthesis planning.           Intended learning outcomes         Students know important categories of substance names. Students are able to use different systems of nomenclature to determine simple substance names. Students are able to analyse the stereochemistry of mo lecules. They are able to describe and formulate some of the most important reactions in organic chemistry. For that purpose, they can analyse and categorise the characteristic reaction conditions and can use them for simpl syntheses.           Courses (type, number of weekly contact hours, language — if other than German)         V 4 (in information on SWS (weekly contact hours) and course language available)           Method of assessment: Gyrma of English	Organi	ic Chem	istry 1 (teaching degre	e for secondary schoo	ls)	08-OC1-GHR-092-m	01
holder of the Professorship of Organic Chemistry Institute of Organic Chemistry CTS Method of grading Only after succ. compl. of module(s) Anumerical grade Only after succ. compl. of module(s) Anumerical grade Admission prerequisite Admission prerequisite to assessment: successful completion of exercises is seen the respective classes as specified at the beginning of the course (usually 70% of exercises to be successfully completed) as well as regu- lar attendance of exercises (usually a maximum of 2 incidents of unexcu sed absence). Contents This module provides students with an overview of the fundamental principles of organic chemistry. It examines the bonding situation of carbon and introduces students to the nomenclature of simple and moderately comple organic compounds. The module also discusses the fundamental principles of strenchemistry, substitution, ad dition and elimination reactions as well as synthesis planning. Intended learning outcomes Students know important categories of substance in organic chemistry. They are able to use different systems of nomenclature to determine simple substance names. Students are able to analyse the strenco-temistry of mo lecules. They are able to describe and formulates some of the most important reactions in organic chemistry. For that purpose, they can analyse and categorise the characteristic reaction conditions and can use them for simpl syntheses. Courses (type, number of weekly contact hours) and course language available) Method of assessment (type, scope, language — if other than German) V + 0 (no information on SWS (weekly contact hours) and course language available) Method of assessment: German or English Allocation of place	Modul	e coord	inator		Module offered by	<u> </u>	
ECTS         Method of grading         Only after succ. compl. of module(s)           6         numerical grade            1 semester         Module level         Other prerequisites           1 semester         undergraduate         Admission prerequisite to assessment: successful completed) as well as regular attendance of exercises to be successful; completed) as well as regular attendance of exercises to be successful; completed) as well as regular attendance of exercises to the nomenclature of simple and moderately complete organic compounds. The module also discusses the fundamental principles of organic chemistry, substitution, and elimination reactions as well as synthesis planning.           Intended learning outcomes         Students know important categories of substances in organic chemistry. They are able to use different systems of nomenclature to determine simple substance names, Students reaction conditions and can use them for simpl syntheses.           Courses (type, number of weekly contact hours, language — if other than German)         Courses (type, number of weekly contact hours, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)           0 1 to givitten examinations: approx. 6 on inutes each) or b) oral examination for ecandidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes)           Language of assessment: German or English           Atditional information         Course (approx. 90 minutes) complications: approx. 60           Atditional information         Corsen (type, cope, languag	holder	of the F	Professorship of Organi	c Chemistry	· · ·	Chemistry	
6       numerical grade	ECTS			,			
a semester       undergraduate       Admission prerequisite to assessment: successful completion of exercises is since respective classes as specified at the beginning of the course (usually 7% of exercises to be successfully completed) as well as regular attendance of exercises (usually a maximum of 2 incidents of unexcu sed absence).         Contents       This module provides students with an overview of the fundamental principles of organic chemistry. It examines the bonding situation of carbon and introduces students to the nomenclature of simple and moderately complex organic compounds. The module also discusses the fundamental principles of stereochemistry, substitution, ad dition and elimination reactions as well as synthesis planning.         Intended learning outcomes       Students know important categories of substance names. Students are able to analyse the stereochemistry of molecules. They are able to describe and formulate some of the most important reactions in organic chemistry. For that purpose, they can analyse and categories the characteristic reaction conditions and can use them for simple syntheses.         Courses (type, number of weekly contact hours, language — if other than German)       Y + 0 (no information on SWS (weekly contact hours) and course language available)         Method of assessment (type, scope, language — if other than German, examination of one candidate each; synthen examination: approx. 60 minutes each of vol rb ) or la examination of one candidate each (approx. 20 minutes) vol rb) or la examination of one candidate each (approx. 20 minutes) vol rb) or la examination of one candidate each (approx. 20 minutes) vol rb) or la examination of one candidate each (approx. 20 minutes) vol rb) or la examination of one candidate each (approx. 20 minutes) vor lo) or al examination for the teaching d	6		· ·	-			
ses in the respective classes as specified at the beginning of the course (usually 70% of exercises to be successfully completed) as well as regu- lar attendance of exercises (usually a maximum of 2 incidents of unexcu sed absence). Contents This module provides students with an overview of the fundamental principles of organic chemistry. It examines the bonding situation of carbon and introduces students to the nomenclature of simple and moderately comple- organic compounds. The module also discusses the fundamental principles of stereochemistry, substitution, ad dition and elimination reactions as well as synthesis planning. Intended learning outcomes Students know important categories of substance names. Students are able to analyse the stereochemistry of mo ecules. They are able to describe and formulate some of the most important reactions in organic chemistry. For that purpose, they can analyse and categories the characteristic reaction conditions and can use them for simple syntheses. Courses (type, number of weekly contact hours, language — if other than German) V + 0 (no information on SWS (weekly contact hours) and course language available) Method of assessment (type, scope, language — if other than German, examination offered — if not every seme- ster, information on whether module can be chosen to earn a bonus) a) to 3 written examination: approx. 60 or 90 minutes each; 3 written examinations: approx. 60 or 90 minutes each; 3 written examinations: approx. 60 or 90 minutes or 0) or al examination in groups (groups of 2, approx. 30 minutes) Language of assessment: German or English Allocation of places 	Duratio	on	Module level	Other prerequisites	5		
This module provides students with an overview of the fundamental principles of organic chemistry. It examines the bonding situation of carbon and introduces students to the nomenclature of simple and moderately complex organic compounds. The module also discusses the fundamental principles of stereochemistry, substitution, ad dition and elimination reactions as well as synthesis planning. Intended learning outcomes Students know important categories of substance names. Students are able to analyse the stereochemistry of mo lecules. They are able to describe and formulate some of the most important reactions in organic chemistry. For that purpose, they can analyse and categorise the characteristic reaction conditions and can use them for simple syntheses. Courses (type, number of weekly contact hours, language — if other than German) V + Ü (no information on SWS (weekly contact hours) and course language available) Method of assessment (type, scope, language — if other than German, examination of fired — if not every semester, information on whether module can be chosen to earn a bonus) a) 10 3 written examinations (1 written examination approx. 96 minutes; 2 written examinations; approx. 60 or 90 minutes; a written examinations (1 written examination in groups (groups of 2, approx. 30 minutes) Language of assessment: German or English Allocation of places	1 seme	ester	undergraduate	ses in the respectiv (usually 70% of exe lar attendance of exe	e classes as specifie ercises to be success	d at the beginning o fully completed) as v	f the course vell as regu-
the bonding situation of carbon and introduces students to the nomenclature of simple and moderately complex organic compounds. The module also discusses the fundamental principles of stereochemistry, substitution, ad dition and elimination reactions as well as synthesis planning. Intended learning outcomes Students know important categories of substances in organic chemistry. They are able to use different systems of nomenclature to determine simple substance names. Students are able to analyse the stereochemistry of mo lecules. They are able to describe and formulate some of the most important reactions in organic chemistry. For that purpose, they can analyse and categorise the characteristic reaction conditions and can use them for simpl syntheses. Courses (type, number of weekly contact hours, language — if other than German) V + Ü (no information on SWS (weekly contact hours) and course language available) Method of assessment (type, scope, language — if other than German, examination offered — if not every seme- ster, information on whether module can be chosen to earn a bonus) a) to 3 written examinations (a written examination: approx. 90 minutes; 2 written examinations: approx. 60 or 90 minutes each; 3 written examinations: approx. 90 minutes; 2 written examinations: approx. 60 or 90 minutes each; 3 written examination in groups (groups of 2, approx. 30 minutes) Language of assessment: German or English Allocation of places 	Conter	nts					
Students know important categories of substances in organic chemistry. They are able to use different systems of nomenclature to determine simple substance names. Students are able to analyse the stereochemistry of mo lecules. They are able to describe and formulate some of the most important reactions in organic chemistry. For that purpose, they can analyse and categorise the characteristic reaction conditions and can use them for simpl syntheses. Courses (type, number of weekly contact hours, language — if other than German) V + U (no information on SWS (weekly contact hours) and course language available) Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus) a) 1 to 3 written examinations (1 written examination: approx. 90 minutes; 2 written examinations: approx. 60 or 90 minutes each; 3 written examinations: approx. 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	the boi organie	nding s c compo	ituation of carbon and bunds. The module also	introduces students to o discusses the fundar	the nomenclature of the nomenclature of the nomenclature of the neutral principles of the neutra	f simple and modera	tely complex
of nomenclature to determine simple substance names. Students are able to analyse the stereochemistry of mo lecules. They are able to describe and formulate some of the most important reactions in organic chemistry. For that purpose, they can analyse and categorise the characteristic reaction conditions and can use them for simpl synthese. <b>Courses</b> (type, number of weekly contact hours, language — if other than German) V + Û (no information on SWS (weekly contact hours) and course language available) <b>Method of assessment</b> (type, scope, language — if other than German, examination offered — if not every seme- ster, information on whether module can be chosen to earn a bonus) a) 1 to 3 written examinations (1 written examination: approx. 90 minutes; 2 written 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 <b>Allocation of places</b> 	Intend	ed lear	ning outcomes				
V + Ü (no information on SWS (weekly contact hours) and course language available)         Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)         a) 1 to 3 written examinations (1 written examination: approx. 90 minutes; 2 written examinations: approx. 60 or 90 minutes each; 3 written examinations: approx. 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               Additional information               Morkload               Beferred to in LPO I (examination regulations for teaching-degree programmes)         § 42 (1) 2. Chemie "Organische und Bioorganische Chemie"         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 Hauptschule Chemistry (2009)         First state examination for the teaching degree Realschule Chemistry (2009)         First state examination for the teaching degree Realschule Chemistry (2009)         First state examinati	lecules that pu synthe	s. They a urpose, ses.	are able to describe and they can analyse and c	d formulate some of th ategorise the characte	e most important rea ristic reaction condit	actions in organic ch ions and can use the	emistry. For
Method of assessment (type, scope, language — if other than German, examination offered — if not every seme-         ster, information on whether module can be chosen to earn a bonus)         a) 1 to 3 written examinations (1 written examination: approx. 90 minutes; 2 written examinations: approx. 60         a) 1 to 3 written examinations (1 written examination: approx. 90 minutes; 2 written 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	Course	es (type	, number of weekly con	tact hours, language -	– if other than Germa	in)	
ster, information on whether module can be chosen to earn a bonus) a) 1 to 3 written examinations (1 written examination: approx. 90 minutes; 2 written examinations: approx. 60 or 90 minutes each; 3 written examinations: approx. 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 Additional information Workload Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) § 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 Hauptschule Didactics in Chemistry (Secondary School) (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) Aluguïzburg • generated 26-Aug-2024 • exam. reg. data re-	V + Ü (	no infoi	mation on SWS (weekl	y contact hours) and c	ourse language avail	able)	
or 90 minutes each; 3 written examinations: approx. 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 						tion offered — if not	every seme-
Allocation of places Allocation of places Allocation of places Additional information Addit	or 90 n each (a	ninutes approx.	each; 3 written examir 20 minutes) or c) oral e	ations: approx. 60 minexamination in groups	nutes each) or b) ora	l examination of one	
Additional information		- <u>-</u>					
Workload            Teaching cycle            Referred to in LPO I (examination regulations for teaching-degree programmes)         § 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 Realschule Didactics in Chemistry (Secondary School) (2009)         First state examination for the teaching degree Realschule Didactics in Chemistry (Secondary School) (2009)         First state examination for the teaching degree Realschule Chemistry (2009)         A Hauptschulen Chemistry (2009)       JMU Würzburg • generated 26-Aug-2024 • exam. reg. data re-       page 26 / 40							
Workload            Teaching cycle            Referred to in LPO I (examination regulations for teaching-degree programmes)         § 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 Realschule Didactics in Chemistry (Secondary School) (2009)         First state examination for the teaching degree Realschule Didactics in Chemistry (Secondary School) (2009)         First state examination for the teaching degree Realschule Chemistry (2009)         A Hauptschulen Chemistry (2009)       JMU Würzburg • generated 26-Aug-2024 • exam. reg. data re-       page 26 / 40	Additio	nal inf	ormation				
Teaching cycle            Referred to in LPO I (examination regulations for teaching-degree programmes)         § 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 Didactics in Chemistry (Secondary School) (2009)         First state examination for the teaching degree Realschule Didactics in Chemistry (Secondary School) (2009)         First state examination for the teaching degree Realschule Chemistry (2009)         A Hauptschulen Chemistry (2009)		- at mit					
Teaching cycle            Referred to in LPO I (examination regulations for teaching-degree programmes)         § 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 Didactics in Chemistry (Secondary School) (2009)         First state examination for the teaching degree Realschule Didactics in Chemistry (Secondary School) (2009)         First state examination for the teaching degree Realschule Chemistry (2009)         A Hauptschulen Chemistry (2009)	Workle	ad					
Referred to in LPO I (examination regulations for teaching-degree programmes)         § 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 Chemistry (2009)         First state examination for the teaching degree Realschule Didactics in Chemistry (Secondary School) (2009)         First state examination for the teaching degree Realschule Chemistry (2009)         Alauptschulen Chemistry (2009)         JMU Würzburg • generated 26-Aug-2024 • exam. reg. data re-       page 26 / 40		au					
Referred to in LPO I (examination regulations for teaching-degree programmes)         § 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 Chemistry (2009)         First state examination for the teaching degree Realschule Didactics in Chemistry (Secondary School) (2009)         First state examination for the teaching degree Realschule Chemistry (2009)         Alauptschulen Chemistry (2009)         JMU Würzburg • generated 26-Aug-2024 • exam. reg. data re-       page 26 / 40	Tooch	ng ovel	0				
§ 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 Realschule Didactics in Chemistry (Secondary School) (2009)         First state examination for the teaching degree Realschule Chemistry (2009)         A Hauptschulen Chemistry (2009)       JMU Würzburg • generated 26-Aug-2024 • exam. reg. data re-       page 26 / 40	reatill	ing cycl	c				
§ 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 Realschule Didactics in Chemistry (Secondary School) (2009)         First state examination for the teaching degree Realschule Chemistry (2009)         A Hauptschulen Chemistry (2009)       JMU Würzburg • generated 26-Aug-2024 • exam. reg. data re-       page 26 / 40	 Dof			ulations for to a lite			
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 Hauptschule Didactics in Chemistry (Secondary School) (2009)         First state examination for the teaching degree Realschule Chemistry (2009)         A Hauptschulen Chemistry (2009)         JMU Würzburg • generated 26-Aug-2024 • exam. reg. data re-         page 26 / 40							
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) A Hauptschulen Chemistry (2009) MU Würzburg • generated 26-Aug-2024 • exam. reg. data re-				sloorganische Chemie	•		
	First st First st First st First st	ate exa ate exa ate exa ate exa	mination for the teachi mination for the teachi mination for the teachi mination for the teachi	ng degree Grundschul ng degree Hauptschul ng degree Hauptschul	e Didactics in Chemis e Chemistry (2009) e Didactics in Chemis		-
	A Hauptso	chulen Che	emistry (2009)			-	page 26 / 40

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)

 

 LA Hauptschulen Chemistry (2009)
 JMU Würzburg • generated 26-Aug-2024 • exam. reg. data record Lehramt Hauptschulen (Unterrichtsfach) Chemie - 2009
 page 27 / 40

Module				-	Abbreviation
Organi	c Cherr	iistry 2 (teaching deg	gree for secondary schoo	ls)	08-0C2-GHR-092-m01
Module	e coord	inator		Module offered b	<u> </u>
		Chair of Physically Or	ganic Chemistry	Institute of Organ	
ECTS		od of grading	Only after succ. con		ie enemistry
7		rical grade			
Duratio	I	Module level	Other prerequisites	<b>.</b>	
1 seme		undergraduate			: successful completion of exerci-
		-	ses in the respectiv	e classes as specif	ied at the beginning of the course
			(usually 70% of exe	rcises to be succes	sfully completed) as well as regu-
			lar attendance of ex	ercises (usually a i	maximum of 2 incidents of unexcu
			sed absence).		
Conten	Its				
This m	odule i	ntroduces students to	o the rules of aromaticity	and discusses spe	ecific reactions of aromatics. Using
	•	<i>,</i> ,		-	ubstitution, elimination and additi
		o complex reaction m ngement.	echanisms. The course a	also focuses on oxi	dation and reduction reactions as
		ning outcomes			
			h the exiteria for eveneti	situ. Thou con onch	yse the varying reactivity of car-
					id aromatics. For that purpose,
					chanisms and can transfer them to
	vn read		<b>o</b> ,	•	
Course	<b>s</b> (type	, number of weekly c	ontact hours, language –	- if other than Gern	nan)
V + Ü (ı	no info	rmation on SWS (wee	kly contact hours) and co	ourse language ava	ailable)
Metho	d of ass	sessment (type, scop	e, language — if other th	an German, examir	nation offered — if not every seme
			le can be chosen to earn		
					ritten examinations: approx. 60
					ral examination of one candidate
		20 minutes) or c) ora ssessment: German	l examination in groups	(groups of 2, appro	ox. 30 minutes)
	ion of				
		Jaces			
Additio	onal inf	ormation			
-					
Worklo	ad	·			
Teachi	ng cycl	e			
	3	-			
Referre	ed to in	LPOI (examination	regulations for teaching-	degree programme	s)
	-		Bioorganische Chemie"	- · -	,
	e appea		0 11 0 11 10		
			hing degree Grundschule	e Chemistry (2009)	
					nistry (Primary School) (2009)
			hing degree Hauptschule		
					nistry (Secondary School) (2009)
Firct ct	ate exa	mination for the teac	hing degree Realschule (	Chamistry (2000)	

LA Hauptschulen Chemistry (2009)	JMU Würzburg • generated 26-Aug-2024 • exam. reg. data re-	page 28 / 40
	cord Lehramt Hauptschulen (Unterrichtsfach) Chemie - 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)

LA Hauptschulen Chemistry (2009)	JMU Würzburg • generated 26-Aug-2024 • exam. reg. data re-	page 29 / 40
	cord Lehramt Hauptschulen (Unterrichtsfach) Chemie - 2009	

Module	e title				Abbreviation	
Organi	c Chem	iistry 3 (teaching de	gree for secondary schoo	ols)	08-0C3-LA-102-m01	
Module	e coord	inator		Module offered by	<u> </u>	
		Professorship of Orga	anic Chemistry	Institute of Organic Chemistry		
ECTS		od of grading	Only after succ. co	· · ·	ic chemistry	
6		rical grade	08-0C1 or 08-0C1-0	•		
Duratio		Module level	Other prerequisites			
1 seme		undergraduate			: successful completion of exerci-	
		5			ied at the beginning of the course	
			(usually 70% of exe	ercises to be succes	sfully completed) as well as regu-	
			lar attendance of e	xercises (usually a r	maximum of 2 incidents of unexcu	
			sed absence).			
Conten	ts					
radicals	s. It dis		ntal principles of stereos		reactions, carbenes, nitriles and asymmetric catalysis, organome-	
Intende	ed lear	ning outcomes				
asymm	etric ca			•	stereoselective syntheses and . They are able to conduct retrosyn	
Course	<b>s</b> (type	, number of weekly c	ontact hours, language -	– if other than Germ	nan)	
V + Ü (r	no info	rmation on SWS (wee	ekly contact hours) and c	ourse language ava	ailable)	
			e, language — if other th Ile can be chosen to earr		nation offered — if not every seme-	
or 90 m each (a	ninutes Ipprox.	each; 3 written exar	ninations: approx. 60 mi al examination in groups	nutes each) or b) or	ritten examinations: approx. 60 ral examination of one candidate ox. 30 minutes)	
Allocat	_					
Additio	nal inf	ormation				
Worklo	ad					
Teachir		ρ				
	is cycl					
Doforro	d to in	IPOL (avamination	rogulations for tooshing	dograa programma	c)	
Referre			regulations for teaching-	uegiee programme	זי	
Modula		arc in				
Module			hing degree Grundschul	e Chemistry (2000)		
			ching degree Hauptschul			
			ching degree Realschule			
			ching degree Gymnasium			
Eirct cto	ate exa	mination for the tead	hing dagraa Mittalaahul			

Module title				Abbreviation
Organic Chem	nistry 4 - advanced cours	e		08-0C4-LAGY-102-m01
Module coord	inator		Module offered by	<u> </u>
holder of the	Chair of Organic Chemist	ry II	Institute of Organic	Chemistry
ECTS Meth	ECTS Method of grading Only after su		pl. of module(s)	
5 nume	rical grade	08-0C1 or 08-0C1-G	HR	
Duration	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-
Contents				
				nd syntheses, working with spe- ification methods and product
Intended lear	ning outcomes			
able to charac	cterise and categorise dy	es. Students are able	to describe the stru	actions and syntheses. They are cture and selective synthesis of ydrates, fats, terpenes and stero-
Courses (type	, number of weekly cont	act hours, language —	· if other than Germa	ın)
V + Ü (no info	rmation on SWS (weekly	contact hours) and co	ourse language avail	able)
	<b>sessment</b> (type, scope, l ion on whether module o			tion offered — if not every seme-
or 90 minutes each (approx.		itions: approx. 60 mir kamination in groups	utes each) or b) ora	tten examinations: approx. 60 l examination of one candidate . 30 minutes)
Allocation of				
Additional inf	ormation			
Workload				
Teaching cycl	e			
Referred to in	LPOI (examination reg	ulations for teaching-o	legree programmes)	
§ 62 (1) 2. Che	emie "Organische und Bi	oorganische Chemie"		
Module appea	ars in			
First state exa First state exa First state exa	mination for the teachin mination for the teachin mination for the teachin mination for the teachin mination for the teachin	g degree Hauptschule g degree Realschule ( g degree Gymnasium	Chemistry (2009) Chemistry (2009) Chemistry (2009)	

LA Hauptschulen Chemistry (2009)	JMU Würzburg • generated 26-Aug-2024 • exam. reg. data re-	page 31 / 40
	cord Lehramt Hauptschulen (Unterrichtsfach) Chemie - 2009	1

Modul	e title	Abbreviation					
Organi	Organic Chemistry - laboratory course (teaching degree for secondary 08-0C-Prakt-GHR-092-mo1						
school	schools)						
Modul	Module coordinator Module offered by						
lecture	ers Organische Chemie (Organic	Institute of Organic	Chemistry				
ECTS							
5	(not) successfully completed		1				
Duratio	on Module level	Other prerequisites					
1 seme	· · · · · · · · · · · · · · · · · · ·						
Conter							
lated lo dition their k	odule gives students the oppor ecture(s). After a safety briefing to those experiments, students nowledge. The course focuses o ions of organic chemistry, simp	, the students autono will be expected to ta on the safe handling o	mously 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		
Intend	ed learning outcomes						
rations error se in the l	nts know how to safely handle h s of organic chemistry. They are ources. They are able to connec laboratory.	able to analyse the yi t the theoretical aspe	eld and purity of the cts covered in the lea	products and identicture with practical e	fy possible		
	es (type, number of weekly cont						
P (no i	nformation on SWS (weekly con	tact hours) and cours	e language available	2)			
	<b>d of assessment</b> (type, scope, l formation on whether module of			tion offered — if not	every seme-		
Assess	ost-experiment examination talk sment offered: once a year, sum age of assessment: German or E	mer semester	approx. 15 minutes e	ach), log (approx. 5	to 10 pages)		
Allocat	tion of places						
Additio	onal information						
Worklo	ad						
Toachi	ng cycle	_					
Teacin							
	ed to in LPO I (examination reg						
§ 42 (1	) 2. Chemie "Organische und Bi	oorganische Chemie"					
Modul	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)							
	ate examination for the teachin	,					
	ate examination for the teachin	,		suy (Secondary Scho	101) (2009)		
	ate examination for the teachin ate examination for the teachin			nemistry (Secondary	School)		
(2009)		5 degree Jonuerpaud		Children (Secondaly	Jenoolj		
-	ate examination for the teachin	g degree Sonderpäda	gogik Didactics in Cl	nemistry (Middle Sch	100l) (2013)		
	ate examination for the teachin	,					
	ate examination for the teachin			try (Middle School)	(2013)		
LA Haupts	chulen Chemistry (2009)		enerated 26-Aug-2024 • exam ptschulen (Unterrichtsfach) C		page 32 / 40		

Module	e title				Abbreviation
Practic	al spec	troscopy 1 (teaching deg	gree for secondary sc	hools)	o8-OC-Spec-LAGY-092-mo1
Module	e coord	inator		Module offered by	
lecture	r of lec	ture "Organische Chemie	2"	Institute of Organi	c Chemistry
ECTS	Methe	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	Its				
This mo NMR sp			e spectroscopic meth	ods of infrared spec	ctroscopy, mass spectrometry and
Intend	ed lear	ning outcomes			
Studen	nts are a		nt spectroscopic meth	nods, to evaluate a	spectrum and to draw conclusions
Course	<b>s</b> (type	, number of weekly conta	act hours, language –	- if other than Germ	an)
V (no ir	nforma	tion on SWS (weekly con	tact hours) and cours	e language availabl	e)
				0	- /
Metho ster, in	format	sessment (type, scope, la ion on whether module c	anguage — if other tha an be chosen to earn	an German, examina a bonus)	ation offered — if not every seme-
Method ster, in a) 1 to g or 90 m each (a	formati 3 writte ninutes approx.	sessment (type, scope, la ion on whether module c en examinations (1 writte	anguage — if other tha an be chosen to earn n examination: appro ations: approx. 60 mir kamination in groups	an German, examina a bonus) x. 90 minutes; 2 wr nutes each) or b) ora	ation offered — if not every seme- itten examinations: approx. 60 al examination of one candidate
Method ster, in a) 1 to g or 90 m each (a	format 3 writte ninutes approx. age of a	sessment (type, scope, la ion on whether module c en examinations (1 writte each; 3 written examina 20 minutes) or c) oral ex ssessment: German or E	anguage — if other tha an be chosen to earn n examination: appro ations: approx. 60 mir kamination in groups	an German, examina a bonus) x. 90 minutes; 2 wr nutes each) or b) ora	ation offered — if not every seme- itten examinations: approx. 60 al examination of one candidate
Method ster, in a) 1 to <u>a</u> or 90 m each (a Langua	format 3 writte ninutes approx. age of a	sessment (type, scope, la ion on whether module c en examinations (1 writte each; 3 written examina 20 minutes) or c) oral ex ssessment: German or E	anguage — if other tha an be chosen to earn n examination: appro ations: approx. 60 mir kamination in groups	an German, examina a bonus) x. 90 minutes; 2 wr nutes each) or b) ora	ation offered — if not every seme- itten examinations: approx. 60 al examination of one candidate
Method ster, in a) 1 to g or 90 m each (a Langua Allocat	formation 3 written approx. age of a age of a	sessment (type, scope, la ion on whether module c en examinations (1 writte each; 3 written examina 20 minutes) or c) oral ex ssessment: German or E	anguage — if other tha an be chosen to earn n examination: appro ations: approx. 60 mir kamination in groups	an German, examina a bonus) x. 90 minutes; 2 wr nutes each) or b) ora	ation offered — if not every seme- itten examinations: approx. 60 al examination of one candidate
Method ster, in a) 1 to g or 90 m each (a Langua Allocat	formation 3 written approx. age of a age of a	sessment (type, scope, la ion on whether module of en examinations (1 writte each; 3 written examina 20 minutes) or c) oral ex ssessment: German or E places	anguage — if other tha an be chosen to earn n examination: appro ations: approx. 60 mir kamination in groups	an German, examina a bonus) x. 90 minutes; 2 wr nutes each) or b) ora	ation offered — if not every seme- itten examinations: approx. 60 al examination of one candidate
Method ster, in a) 1 to g or 90 m each (a Langua Allocat	format 3 writte approx. age of a <b>ion of p</b>	sessment (type, scope, la ion on whether module of en examinations (1 writte each; 3 written examina 20 minutes) or c) oral ex ssessment: German or E places	anguage — if other tha an be chosen to earn n examination: appro ations: approx. 60 mir kamination in groups	an German, examina a bonus) x. 90 minutes; 2 wr nutes each) or b) ora	ation offered — if not every seme- itten examinations: approx. 60 al examination of one candidate
Methor ster, in a) 1 to 1 or 90 n each (a Langua Allocat  Additio	format 3 writte approx. age of a <b>ion of p</b>	sessment (type, scope, la ion on whether module of en examinations (1 writte each; 3 written examina 20 minutes) or c) oral ex ssessment: German or E places	anguage — if other tha an be chosen to earn n examination: appro ations: approx. 60 mir kamination in groups	an German, examina a bonus) x. 90 minutes; 2 wr nutes each) or b) ora	ation offered — if not every seme- itten examinations: approx. 60 al examination of one candidate
Methor ster, in a) 1 to 1 or 90 m each (a Langua Allocat  Additio  Worklo 	format 3 writte approx. age of a <b>ion of p</b> <b>onal inf</b>	sessment (type, scope, la ion on whether module of each; 3 written examina 20 minutes) or c) oral ex ssessment: German or E places	anguage — if other tha an be chosen to earn n examination: appro ations: approx. 60 mir kamination in groups	an German, examina a bonus) x. 90 minutes; 2 wr nutes each) or b) ora	ation offered — if not every seme- itten examinations: approx. 60 al examination of one candidate
Methor ster, in a) 1 to 1 or 90 n each (a Langua Allocat  Additio	format 3 writte approx. age of a <b>ion of p</b> <b>onal inf</b>	sessment (type, scope, la ion on whether module of each; 3 written examina 20 minutes) or c) oral ex ssessment: German or E places	anguage — if other tha an be chosen to earn n examination: appro ations: approx. 60 mir kamination in groups	an German, examina a bonus) x. 90 minutes; 2 wr nutes each) or b) ora	ation offered — if not every seme- itten examinations: approx. 60 al examination of one candidate
Method ster, in a) 1 to 2 or 90 m each (a Langua Allocat  Additio  Worklo  Teachin 	format 3 writte ninutes approx. age of a ion of p onal inf oad	e e e e e e e e e e e e e e e e e e e	anguage — if other the an be chosen to earn n examination: appro ations: approx. 60 mir (amination in groups (nglish	an German, examina a bonus) x. 90 minutes; 2 wr nutes each) or b) ora (groups of 2, approx	ation offered — if not every seme- itten examinations: approx. 60 al examination of one candidate k. 30 minutes)
Method ster, in a) 1 to 2 or 90 m each (a Langua Allocat  Additio  Worklo  Teachin  Referre	format 3 writte ninutes approx. age of a ion of p onal inf onal inf oad	e EPOI (examination regulation of the second tern examinations (1 writter tern examinations (1 writter tern examinations (1 writter tern examination (1 writter) (1 writter tern examination (1 writter) (1 writter tern examination (1 writter) (1 writ	anguage — if other the an be chosen to earn n examination: appro tions: approx. 60 mir (amination in groups (inglish)	an German, examina a bonus) x. 90 minutes; 2 wr nutes each) or b) ora (groups of 2, approx	ation offered — if not every seme- itten examinations: approx. 60 al examination of one candidate k. 30 minutes)
Method ster, in a) 1 to 2 or 90 m each (a Langua Allocat  Morklo  Teachin  Referrer § 62 (1)	formati 3 written inutes approx. age of a ion of p onal inf onal inf oad ad ed to in ) 2. Che	e EPOI (examination regue emie "Organische und Bi	anguage — if other the an be chosen to earn n examination: appro tions: approx. 60 mir (amination in groups (inglish)	an German, examina a bonus) x. 90 minutes; 2 wr nutes each) or b) ora (groups of 2, approx	ation offered — if not every seme- itten examinations: approx. 60 al examination of one candidate k. 30 minutes)
Method ster, in a) 1 to 2 or 90 m each (a Langua Allocat  Additio  Worklo  Teachin  Referre § 62 (1) Module	format 3 writte ninutes approx. age of a ion of p onal inf onal inf onal inf oad ad oad	sessment (type, scope, la ion on whether module of en examinations (1 writte each; 3 written examina 20 minutes) or c) oral ex ssessment: German or E places ormation e LPO I (examination regu emie "Organische und Bi ars in	anguage — if other the an be chosen to earn n examination: appro ations: approx. 60 mir kamination in groups inglish ulations for teaching-o oorganische Chemie"	an German, examina a bonus) x. 90 minutes; 2 wr nutes each) or b) ora (groups of 2, approx	ation offered — if not every seme- itten examinations: approx. 60 al examination of one candidate k. 30 minutes)
Method ster, in a) 1 to 1 or 90 m each (a Langua Allocat  Additio  Worklo  Teachin  S 62 (1) First sta	format 3 writte ninutes approx. age of a ion of p onal inf onal inf onal inf oad ed to in ) 2. Che e appea	e E E E E E E E E E E E E E E E E E E E	anguage — if other the can be chosen to earn n examination: appro ations: approx. 60 mir (amination in groups inglish ulations for teaching-o oorganische Chemie"	an German, examina a bonus) x. 90 minutes; 2 wr nutes each) or b) ora (groups of 2, approx degree programmes e Chemistry (2009)	ation offered — if not every seme- itten examinations: approx. 60 al examination of one candidate k. 30 minutes)
Method           ster, in           a) 1 to 1           or 90 m           each (a           Langua           Allocat              Additio              Worklo              S 62 (1)           First sta           First sta	formati 3 written inutes approx. age of a ion of p onal inf onal inf oad ed to in ) 2. Che e appea ate exa ate exa	sessment (type, scope, la ion on whether module of en examinations (1 writte each; 3 written examina 20 minutes) or c) oral ex ssessment: German or E places ormation e LPO I (examination regu emie "Organische und Bi ars in	anguage — if other the an be chosen to earn n examination: appro ations: approx. 60 mir (amination in groups inglish ulations for teaching- oorganische Chemie" g degree Grundschule g degree Hauptschule	an German, examina a bonus) x. 90 minutes; 2 wr nutes each) or b) ora (groups of 2, approx degree programmes e Chemistry (2009) e Chemistry (2009)	ation offered — if not every seme- itten examinations: approx. 60 al examination of one candidate k. 30 minutes)
Method ster, in a) 1 to 2 or 90 m each (a Langua Allocat  Additio  Worklo  Teachin  S 62 (1) First sta First sta First sta	format 3 writte ninutes approx. age of a ion of p onal inf onal in	e EPOI (examination regue emie "Organische und Bi mination for the teaching mination for the tea	anguage — if other the an be chosen to earn n examination: appro ations: approx. 60 mir camination in groups inglish ulations for teaching-o oorganische Chemie" g degree Grundschule g degree Realschule G	an German, examina a bonus) x. 90 minutes; 2 wr hutes each) or b) ora (groups of 2, approx degree programmes e Chemistry (2009) chemistry (2009)	ation offered — if not every seme- itten examinations: approx. 60 al examination of one candidate k. 30 minutes)

Modul	e title				Abbreviation	
Physic	al and 1	Theoretical Chemistry 3	: Symmetry and Quant	um Chemistry	08-PC3-092-m01	
Modul	e coord	inator		Module offered by		
lecture	er of lect	ure "Quantenchemie"		Institute of Physica	l and Theoretical Che	emistry
ECTS	Metho	od of grading	Only after succ. com	pl. of module(s)		
6	nume	rical grade				
Duratio	on	Module level	Other prerequisites			
1 seme	ester	undergraduate	Admission prerequis	ite to assessment:	successful completion	on of exerci-
			ses in the respective	classes as specifie	d at the beginning of	f the course
			(usually 70% of exer	cises to be success	fully completed) as v	vell as regu-
			lar attendance of exe	ercises (usually a ma	aximum of 2 inciden	ts of unexcu-
			sed absence).			
Conter	nts					
This m	odule d	iscusses the fundamen	tal principles of quantu	um chemistry and sy	mmetry in chemistry	/.
		ning outcomes	<u> </u>	······································		
		become familiar with t	ho fundamental princir	alos of quantum sha	mistry and symmetry	v in cho
		able to apply the know			ennistry and symmetri	y in che-
	-	, number of weekly cont			n)	
		no information on SWS				
		essment (type, scope, lon on whether module			tion offered — if not	every seme-
				-	• .• .	• .
		n examinations (1 writte n examinations: 60 min				
-		examination in groups (			andidate each (appli	)x. 20 mmu-
	tion of p		<u>9.00000 01 2, 000000 00</u>			
Allocal		haces				
Additio	onal info	ormation				
Worklo	ad					
Teachi	ng cycl	e				
Roforra	ad to in	LPOI (examination reg		egree programmes)		
Keren						
		•				
	e appea					
	-	ree (1 major) Biochemis				
	-	ree (1 major) Chemistry				
	-	ree (1 major) Chemistry	-			
	Bachelor' degree (1 major) Mathematics (2012) Bachelor' degree (1 major) Mathematics (2013)					
	-	ree (1 major) Mathemati	-	) )		
	-	ree (1 major) Computati		•		
	-	ree (1 major) Computati				
	-	ree (1 major) FOKUS Che		<i></i>		
	-	mination for the teachir	-	Chemistry (2009)		
		mination for the teachir				
		mination for the teachir	,			
LA Hauptso	chulen Che	mistry (2009)		nerated 26-Aug-2024 • exan		page 34 / 40
			cord Lehramt Haup	tschulen (Unterrichtsfach) C	nemie - 2009	



First state examination for the teaching degree Gymnasium Chemistry (2009) First state examination for the teaching degree Mittelschule Chemistry (2013)

LA Hauptschulen Chemistry (2009)	JMU Würzburg • generated 26-Aug-2024 • exam. reg. data re-	page 35 / 40
	cord Lehramt Hauptschulen (Unterrichtsfach) Chemie - 2009	

	e title				Abbreviation	
Physica	al Chen	nistry 4: Statistical Ther	modynamics		08-PC4-092-m01	
Module	e coord	inator		Module offered by		
lecture	r of lect	ture "Statistische Therm	odvnamik"		l and Theoretical Chemistry	
ECTS		od of grading	Only after succ. con	· · · ·	tune medicileat chemistry	
3		rical grade				
Duratio		Module level	Other prerequisites	•		
1 seme		undergraduate	1		successful completion of exerci-	
2 0 00						
				ses in the respective classes as specified at the beginning of the cou (usually 70% of exercises to be successfully completed) as well as re		
					aximum of 2 incidents of unexcu	
			sed absence).			
Conten	its					
		iscusses the fundament	al principles of statis	tical thermodynamic	S.	
		ning outcomes				
		-		inles of statistical the	ermodynamics and are able to	
		wledge they have develo		וףוכס טו סומנוסנוכמו נווע	chinouyhannes and are able lu	
		, number of weekly cont		– if other than Germa	n)	
		mation on SWS (weekly				
			-		tion offered — if not every seme	
		on on whether module of			tion oncica in not every senie	
a) 1 to :		• •• / •••				
	3 WIILLE	n examinations (1 writte	n examination: appro	ox. 90 minutes; 2 writ	ten examinations: approx. 60	
					ten examinations: approx. 60 l examination of one candidate	
or 90 m	ninutes		ations: approx. 60 min	nutes each) or b) ora	l examination of one candidate	
or 90 m	ninutes approx.	each; 3 written examina 20 minutes) or c) oral ex	ations: approx. 60 min	nutes each) or b) ora	l examination of one candidate	
or 90 m each (a	ninutes approx.	each; 3 written examina 20 minutes) or c) oral ex	ations: approx. 60 min	nutes each) or b) ora	l examination of one candidate	
or 90 m each (a Allocat	ninutes approx. ion of p	each; 3 written examina 20 minutes) or c) oral ex	ations: approx. 60 min	nutes each) or b) ora	l examination of one candidate	
or 90 m each (a Allocat	ninutes approx. ion of p	each; 3 written examina 20 minutes) or c) oral ex <b>places</b>	ations: approx. 60 min	nutes each) or b) ora	l examination of one candidate	
or 90 m each (a Allocat  Additio	ninutes approx. ion of p	each; 3 written examina 20 minutes) or c) oral ex <b>places</b>	ations: approx. 60 min	nutes each) or b) ora	l examination of one candidate	
or 90 m each (a Allocat	ninutes approx. ion of p	each; 3 written examina 20 minutes) or c) oral ex <b>places</b>	ations: approx. 60 min	nutes each) or b) ora	l examination of one candidate	
or 90 m each (a Allocat  Additio  Worklo 	ninutes approx. ion of p onal info	each; 3 written examina 20 minutes) or c) oral ex places ormation	ations: approx. 60 min	nutes each) or b) ora	l examination of one candidate	
or 90 m each (a Allocat  Additio	ninutes approx. ion of p onal info	each; 3 written examina 20 minutes) or c) oral ex places ormation	ations: approx. 60 min	nutes each) or b) ora	l examination of one candidate	
or 90 m each (a Allocat  Additio  Worklo  Teachin 	ninutes approx. ion of p onal info pad	each; 3 written examina 20 minutes) or c) oral ex places ormation	ations: approx. 60 min xamination in groups	nutes each) or b) ora (groups of 2, approx	l examination of one candidate . 30 minutes)	
or 90 m each (a Allocat  Additio  Worklo  Teachin 	ninutes approx. ion of p onal info pad	each; 3 written examina 20 minutes) or c) oral ex places ormation	ations: approx. 60 min xamination in groups	nutes each) or b) ora (groups of 2, approx	l examination of one candidate . 30 minutes)	
or 90 m each (a Allocat  Additio  Worklo  Teachin  Referre	ninutes approx. ion of p onal info pad ng cycl ed to in	each; 3 written examina 20 minutes) or c) oral ex places ormation e LPO I (examination reg	ations: approx. 60 min xamination in groups	nutes each) or b) ora (groups of 2, approx	l examination of one candidate . 30 minutes)	
or 90 m each (a Allocat  Additio  Worklo  Teachin  Referre  Module	ninutes approx. ion of p onal info pad ng cycl ed to in e appea	each; 3 written examina 20 minutes) or c) oral ex olaces ormation e LPOI (examination reg	ations: approx. 60 min xamination in groups	nutes each) or b) ora (groups of 2, approx	l examination of one candidate . 30 minutes)	
or 90 m each (a Allocat  Additio  Worklo  Teachin  Referre Bachel	ninutes approx. ion of p onal info pad ng cycl ed to in e appea or' deg	each; 3 written examina 20 minutes) or c) oral ex olaces ormation e LPO I (examination reg urs in ree (1 major) Chemistry (	ations: approx. 60 min xamination in groups ulations for teaching-	nutes each) or b) ora (groups of 2, approx	l examination of one candidate . 30 minutes)	
or 90 m each (a Allocat  Additio  Worklo  Teachin  Referre Bachel Bachel Bachel	ninutes approx. ion of p onal info pad ed to in e appea or' deg or' deg	each; 3 written examina 20 minutes) or c) oral ex olaces ormation e LPO I (examination reg urs in ree (1 major) Chemistry ( ree (1 major) Chemistry (	ations: approx. 60 min xamination in groups ulations for teaching- (2010) (2009)	nutes each) or b) ora (groups of 2, approx	l examination of one candidate . 30 minutes)	
or 90 m each (a Allocat  Additio  Worklo  Teachin  Referre  Bachel Bachel Bachel	ninutes approx. ion of p onal info ad ng cycl ed to in e appea or' deg or' deg or' deg	each; 3 written examina 20 minutes) or c) oral ex olaces ormation e LPO I (examination reg urs in ree (1 major) Chemistry (	ations: approx. 60 min xamination in groups ulations for teaching- (2010) (2009) mistry (2011)	nutes each) or b) ora (groups of 2, approx degree programmes)	l examination of one candidate . 30 minutes)	
or 90 m each (a Allocat  Additio  Worklo  Teachin  Referre  Bachel Bachel Bachel First sta	ninutes approx. ion of p onal info pad ng cycl ed to in e appea or' deg or' deg or' deg ate exa	each; 3 written examina 20 minutes) or c) oral ex olaces ormation e LPO I (examination regr urs in ree (1 major) Chemistry ( ree (1 major) FOKUS Che	ulations for teaching- (2010) (2009) mistry (2011) g degree Grundschuld	e Chemistry (2009)	l examination of one candidate . 30 minutes)	
or 90 m each (a Allocat  Additio  Worklo  Teachin  Referre Bachel Bachel Bachel First sta First sta	ninutes approx. ion of p onal info pad ed to in e appea or' deg or' deg or' deg or' deg ate exa ate exa	each; 3 written examina 20 minutes) or c) oral ex olaces ormation e LPO I (examination reg urs in ree (1 major) Chemistry ( ree (1 major) FOKUS Che mination for the teachin	ations: approx. 60 min xamination in groups ulations for teaching- (2010) (2009) mistry (2011) g degree Grundschuld g degree Hauptschuld	e Chemistry (2009) e Chemistry (2009)	l examination of one candidate . 30 minutes)	
or 90 m each (a Allocat  Additio  Worklo  Teachin  Referre Bachel Bachel Bachel Bachel First sta First sta First sta	ninutes approx. ion of p onal info ad ng cycl ed to in e appea or' deg or' deg or' deg or' deg ate exa ate exa ate exa ate exa	each; 3 written examina 20 minutes) or c) oral ex olaces ormation e LPO I (examination reg urs in ree (1 major) Chemistry ( ree (1 major) Chemistry ( ree (1 major) FOKUS Chemination for the teachin mination for the teachin	ations: approx. 60 min xamination in groups ulations for teaching- (2010) (2009) mistry (2011) g degree Grundschule g degree Realschule ( g degree Gymnasium	e Chemistry (2009) e Chemistry (2009) Chemistry (2009)	l examination of one candidate . 30 minutes)	

Module	e title				Abbreviation	
Electro	nic stru	cture and spectroscopy	,		08-PC-ESS-092-m01	
Module	<u></u>	lastar		Module offered by		
				<b>·</b>		
	lectroni	ure "Elektronische Strul c Structure and Spectro	scopy)		l and Theoretical Chemistry	
ECTS	·	od of grading	Only after succ. con	pl. of module(s)		
3	·	rical grade				
Duratio		Module level	Other prerequisites			
1 seme	ster	undergraduate	ses in the respective (usually 70% of exe	e classes as specifie rcises to be successf	successful completion of exerci- d at the beginning of the course fully completed) as well as regu- aximum of 2 incidents of unexcu-	
Conten	Its					
Fundar	nentals	of atomic and molecula	r structure as well as	spectroscopy.		
Intende	ed learı	ning outcomes				
		e learned the fundament nowledge they have dev		ecular structure as w	vell as spectroscopy and are able	
Course	<b>s</b> (type	, number of weekly cont	act hours, language –	· if other than Germa	n)	
v + Ü (r	no infor	mation on SWS (weekly	contact hours) and co	ourse language avail	able)	
		essment (type, scope, la on on whether module o			tion offered — if not every seme-	
or 90 m each (a	ninutes approx.		itions: approx. 60 mir kamination in groups	utes each) or b) oral	ten examinations: approx. 60 l examination of one candidate . 30 minutes)	
Allocat	ion of p	olaces				
Additio	onal inf	ormation				
Worklo	ad					
Teachi		9				
	.5 .,	-				
Referre	ed to in	LPOI (examination reg		legree programmes)		
Module	e annea	in in				
First sta First sta First sta First sta	Module appears in First state examination for the teaching degree Grundschule Chemistry (2009) First state examination for the teaching degree Hauptschule Chemistry (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 Mittelschule Chemistry (2013)					

Modul					Abbreviation
Physic	al Cher	nistry (teaching degree f	or secondary schools	5)	08-PC-GHR-102-m01
Modul	e coord	inator	Module offered by		
für Stu	dierend	ture "Thermodynamik, Ki le der Biologie, Lebensm emie GHR"	-	Institute of Physica	l and Theoretical Chemistry
ECTS		od of grading	Only after succ. com	pl. of module(s)	
4	1	rical grade			
Duratio	on .	Module level	Other prerequisites		
1 seme	ster	undergraduate			
Conten	ts				
This m	odule c	liscusses the fundament	al principles of therm	odynamics, kinetics	and electrochemistry.
	-	ning outcomes			
		e become familiar with th re able to understand an			nics, kinetics and electroche- re and engineering.
Course	<b>s</b> (type	, number of weekly conta	act hours, language —	- if other than Germa	n)
V + Ü (I	no info	rmation on SWS (weekly	contact hours) and co	ourse language avail	able)
	exami	ion on whether module c nation (approx. 60 minut <b>places</b>		a bonus)	
Additic	onal inf	ormation			
Worklo	ad				
Teachi	ng cycl	e			
Referre	ed to in	LPOI (examination regu	lations for teaching-o	degree programmes)	
	_	mie "Allgemeine und An			
Module					
First st First st	ate exa ate exa	mination for the teaching	g degree Grundschule g degree Hauptschule	e Didactics in Chemis e Chemistry (2009)	stry (Primary School) (2009) stry (Secondary School) (2009)
First st (2009)	ate exa		g degree Sonderpäda	gogik Didactics in Cl	nemistry (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)					

Modul					Abbreviation	
Basic I	Aathem	atics (teaching degree)			08-PC-VKM-LA-102-m01	
Modul	e coord	inator		Module offered by		
lecture	r of blo	ck course "Mathematik"	(Mathematics)	Institute of Physica	l and Theoretical Chemistry	
ECTS	Metho	od of grading	Only after succ. con			
2	1	successfully completed				
Duratio	on	Module level	Other prerequisites			
1 seme	ster	undergraduate				
Conter	Its					
					sed in physical/theoretical che- n thermodynamics and kinetics.	
Intend	ed lear	ning outcomes				
Studer mistry.		e been trained in mathem	natical methods. They	v are able to apply th	ose methods to problems in che-	
Course	<b>s</b> (type	, number of weekly conta	ict hours, language –	- if other than Germa	ın)	
V + Ü (	no infoi	mation on SWS (weekly	contact hours) and co	ourse language avail	able)	
		essment (type, scope, la on on whether module c			tion offered — if not every seme-	
		ork sheets) ssessment: German or Ei	nglish			
Allocat						
Additio	onal inf	ormation				
Worklo	ad					
Teachi	ng cycl	e				
	ing cyce					
Poforra	d to in	IPOL (avamination rogu	lations for toaching	logroo programmoc)		
NEICII		LPOI (examination regu				
Madul						
Modul			n da ema a Cimun da abrula			
		mination for the teaching mination for the teaching			stry (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 st	ate exa	mination for the teaching	g degree Realschule (	Chemistry (2009)		
First st	ate exa	mination for the teaching	g degree Gymnasium	Chemistry (2009)		
(2009)					nemistry (Secondary School)	
			,		nemistry (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					Abbreviation
Theore	tical M	odels in Chemistry (teac	hing degree for secor	idary schools)	08-TC-LA-092-m01
Module	e coord	inator		Module offered by	
lecture	r of lect	ure "Quantenchemie"		Institute of Physic	al and Theoretical Chemistry
ECTS	Metho	od of grading	Only after succ. com	pl. of module(s)	
3	nume	rical grade			
Duratio	n	Module level	Other prerequisites		
1 seme	ster	undergraduate	Admission prerequis	site to assessment:	successful completion of exerci-
			ses in the respective	e classes as specifi	ed at the beginning of the course
			(usually 70% of exe	cises to be succes	sfully completed) as well as regu-
			lar attendance of ex	ercises (usually a n	naximum of 2 incidents of unexcu
			sed absence).		
Conten	ts				
spin, tł	ne Paul		inants, the Hartree-Fo	ock method, correla	uantum chemistry. It focuses on ation energy, configuration interac odels of H2+.
Intende	ed lear	ning outcomes			
Studen	ts are a	able to describe excited s	tates of molecules w	ith the help of key (	concepts and models.
Course	<b>s</b> (type	, number of weekly conta		if other than Germ	an)
V + Ü (r	no infoi	mation on SWS (weekly o	contact hours) and co	urse language ava	ilable)
		essment (type, scope, la on on whether module ca			ation offered — if not every seme-
or 90 m	ninutes		tions: approx. 60 min	utes each) or b) or	itten examinations: approx. 60 al examination of one candidate x. 30 minutes)
Allocat			<b>C</b> ,		
Additio	nal inf	ormation			
naunne					
Worklo					
WORKIO	au				
Teachi	ng cycl	e			
Referre	d to in	LPOI (examination regu	lations for teaching-o	legree programmes	;)
		•			
Module					
		mination for the teaching			
		mination for the teaching			
		mination for the teaching mination for the teaching			
		mination for the teaching			
			segree milleischule	chemistry (2015)	