Julius-Maximilians-
UNIVERSITÄT
WÜRZBURG

Module Catalogue

for the Subject

Chemistry

as Unterrichtsfach

with the degree "Erste Staatsprüfung für das Lehramt an Grundschulen"

Examination regulations version: 2015
Responsible: Faculty of Chemistry and Pharmacy

Contents

The subject is divided into

Abbreviations used

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

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

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

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

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

Conventions

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:

LASPO2015

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

08-Sep-2015 (2015-128)

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.

Scientific Discipline

(54 ECTS credits)

Compulsory Courses

(54 ECTS credits)

Module title			Abbreviation
Principles of Inorganic Chemistry			08-AC1-152-m01
Module coordinator		**Module offered by**	
lecturer of lecture "Experimentalchemie" (Experimental Chemistry)		Institute of Inorganic Chemistry	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
8	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

The module provides an overview of the fundamental knowledge of chemistry. Emphasis is placed on the material and particle level, metals, acid-base reactions, the periodic table, chemical equilibrium and complexometry. In addition, the module introduces fundamental concepts of chemistry and teaches the basics of inorganic chemistry.

Intended learning outcomes

The student understands the principles of the periodic table and can obtain information from it. He/she is proficient in basic models of the structure of matter and can describe them properly. He/she can depict chemical reactions using typical chemical formula language and interpret them by identifying the type of reaction. The students know how the most important quantitative and qualitative analytical methods work and their areas of application.

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

V (4) + V (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 90 to 180 minutes) or
b) oral examination of one candidate each (20 to 30 minutes) or
c) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or
d) log (approx. 20 pages) or
e) presentation (approx. 30 minutes)
Language of assessment: German and/or English

Allocation of places

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Additional information

according to § 2 para. 2 sentence 2 APOLmCh in conjunction with No. I 2nd letter a) of annex 1 to the APOLmCh and No. 1 of annex 2 to the APOLmCh

Workload

240 h

Teaching cycle

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

§ 42 I Nr. 1 and § 22 II Nr. 1 h)
§ 62 I Nr. 1

Module appears in

Bachelor's degree (1 major) Biochemistry (2015)
Bachelor's degree (1 major) Chemistry (2015)
First state examination for the teaching degree Grundschule Chemistry (2015)
First state examination for the teaching degree Grundschule Didactics in Chemistry (Primary School) (2015)

First state examination for the teaching degree Realschule Chemistry (2015)
First state examination for the teaching degree Gymnasium Chemistry (2015)
First state examination for the teaching degree Sonderpädagogik Didactics in Chemistry (Middle School) (2015)
First state examination for the teaching degree Mittelschule Chemistry (2015)
First state examination for the teaching degree Mittelschule Didactics in Chemistry (Middle School) (2015)
Bachelor's degree (1 major) Biochemistry (2017)
Bachelor's degree (1 major) Chemistry (2017)
First state examination for the teaching degree Mittelschule Chemistry (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Mittelschule Didactics in Chemistry (Middle School) (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Sonderpädagogik Didactics in Chemistry (Middle School) (2020 (Prüfungsordnungsversion 2015))
Bachelor's degree (1 major) Food Chemistry (2021)
Bachelor's degree (1 major) Biochemistry (2022)
Bachelor's degree (1 major) Food Chemistry (2025)

Module title			Abbreviation
Concepts of Inorganic Chemistry			08-AC-KAC-152-m01
Module coordinator		**Module offered by**	
lecturers of lecture "Konzepte der Anorganischen Chemie" (Concepts of Anorganic Chemistry)		Institute of Inorganic Chemistry	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

This module provides an introduction to atoms and the MO theory. It discusses the orbital model, the VSEPR theory and the valence bond theory. The course also focuses on redox reactions, acids and bases and electrochemistry.

Intended learning outcomes

Students are able to describe the bonding situations and geometry of molecules of lower complexity on the basis of different models. They are able to assign oxidation numbers to atoms in chemical compounds and know different acid-base concepts.

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

V (1) + Ü (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 90 to 180 minutes) or
b) oral examination of one candidate each (20 to 30 minutes) or
c) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or
d) log (approx. 20 pages) or
e) presentation (approx. 30 minutes)
Language of assessment: German and/or English

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

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

§ 42 I Nr. 1
§ 62 I Nr. 1

Module appears in

First state examination for the teaching degree Grundschule Chemistry (2015)
First state examination for the teaching degree Realschule Chemistry (2015)
First state examination for the teaching degree Gymnasium Chemistry (2015)
First state examination for the teaching degree Mittelschule Chemistry (2015)
First state examination for the teaching degree Mittelschule Chemistry (2020 (Prüfungsordnungsversion 2015))

Module title			Abbreviation
Inorganic and Analytical Chemistry (lab) (teaching degree)			08-ACP1-LA-152-m01
Module coordinator		**Module offered by**	
holder of the Chair of Anorganic Chemistry		Institute of Inorganic Chemistry	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
7	(not) successfully completed	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

This module gives students the opportunity to apply in practice the knowledge they have gained through the related lecture(s). 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.

Intended learning outcomes

Students 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)

P (12)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

Vortestate/Nachtestate (pre and post-experiment examination talks approx. 15 minutes each, log approx. 5 to 10 pages each) and assessment of practical performance (2 to 4 random examinations)
Language of assessment: German and/or English
Assessment offered: Once a year, summer semester

Allocation of places

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Additional information

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Workload

210 h

Teaching cycle

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

§ 42 I Nr. 1
§ 62 I Nr. 1

Module appears in

First state examination for the teaching degree Grundschule Chemistry (2015)
First state examination for the teaching degree Realschule Chemistry (2015)
First state examination for the teaching degree Gymnasium Chemistry (2015)
First state examination for the teaching degree Mittelschule Chemistry (2015)
First state examination for the teaching degree Mittelschule Chemistry (2020 (Prüfungsordnungsversion 2015))

Module title			Abbreviation
Organic Chemistry 1 (teaching degree for secondary schools)			08-OC1-LAGMR-152-m01
Module coordinator		**Module offered by**	
holder of the Professorship of Organic Chemistry		Institute of Organic Chemistry	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
6	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

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, addition 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 molecules. 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 (3) + Ü (1)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 90 to 180 minutes) or
b) oral examination of one candidate each (20 to 30 minutes) or
c) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or
d) log (approx. 20 pages) or
e) presentation (approx. 30 minutes)
Language of assessment: German and/or English

Allocation of places

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Additional information

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Workload

180 h

Teaching cycle

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

§ 42 I Nr. 2 and § 22 II Nr. 1 h)

Module appears in

First state examination for the teaching degree Grundschule Chemistry (2015)
First state examination for the teaching degree Grundschule Didactics in Chemistry (Primary School) (2015)
First state examination for the teaching degree Realschule Chemistry (2015)
First state examination for the teaching degree Sonderpädagogik Didactics in Chemistry (Middle School) (2015)
First state examination for the teaching degree Mittelschule Chemistry (2015)
First state examination for the teaching degree Mittelschule Didactics in Chemistry (Middle School) (2015)
First state examination for the teaching degree Mittelschule Chemistry (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Mittelschule Didactics in Chemistry (Middle School) (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Sonderpädagogik Didactics in Chemistry (Middle School) (2020 (Prüfungsordnungsversion 2015))

Module title			Abbreviation
Organic Chemistry 2			08-OC2-VL-152-m01
Module coordinator		**Module offered by**	
holder of the Chair of Physically Organic Chemistry		Institute of Organic Chemistry	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
6	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

This module introduces students to the rules of aromaticity and discusses specific reactions of aromatics. Using the example of carbonyl compounds, it extends the students' knowledge of substitution, elimination and addition reactions to complex reaction mechanisms. The course also focuses on oxidation and reduction reactions as well as rearrangement.

Intended learning outcomes

Students have become familiar with the criteria for aromaticity. They can analyse the varying reactivity of carbonyl compounds. They are able to describe specific reactions of carbonyls and aromatics. For that purpose, they can plan and formulate multi-stage syntheses with complex reaction mechanisms and can transfer them to unknown reactions.

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

V (3) + Ü (1)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 90 to 180 minutes) or
b) oral examination of one candidate each (20 to 30 minutes) or
c) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or
d) log (approx. 20 pages) or
e) presentation (approx. 30 minutes)
Language of assessment: German and/or English

Allocation of places

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Additional information

according to § 2 para. 2 sentence 2 APOLmCh in conjunction with No. I 2nd letter b) of annex 1 to the APOLmCh and No. 2 of annex 2 to the APOLmCh

Workload

180 h

Teaching cycle

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

§ 42 I Nr. 2 and § 22 II Nr. 1 h)
§ 62 I Nr. 2

Module appears in

Bachelor's degree (1 major) Functional Materials (2015)
First state examination for the teaching degree Grundschule Chemistry (2015)
First state examination for the teaching degree Grundschule Didactics in Chemistry (Primary School) (2015)
First state examination for the teaching degree Realschule Chemistry (2015)
First state examination for the teaching degree Gymnasium Chemistry (2015)
First state examination for the teaching degree Sonderpädagogik Didactics in Chemistry (Middle School) (2015)

First state examination for the teaching degree Mittelschule Chemistry (2015)
First state examination for the teaching degree Mittelschule Didactics in Chemistry (Middle School) (2015)
First state examination for the teaching degree Mittelschule Chemistry (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Mittelschule Didactics in Chemistry (Middle School) (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Sonderpädagogik Didactics in Chemistry (Middle School) (2020 (Prüfungsordnungsversion 2015))
Bachelor's degree (1 major) Food Chemistry (2021)
Bachelor's degree (1 major) Food Chemistry (2025)

Module title			Abbreviation
Organic Chemistry - laboratory course (teaching degree for secondary schools)			08-OCP-LAGMR-152-m01
Module coordinator		**Module offered by**	
lecturers Organische Chemie (Organic Chemistry)		Institute of Organic Chemistry	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	(not) successfully completed	08-OC1-LAGMR	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

This module gives students the opportunity to apply in practice the knowledge they have gained through the related lecture(s). After a safety briefing, the students autonomously conduct experiments in the laboratory. In addition to those experiments, students will be expected to take oral tests and write lab reports to demonstrate their knowledge. The course focuses on the safe handling of hazardous substances, simple experimental unit operations of organic chemistry, simple to multi-level syntheses and the analysis of the products.

Intended learning outcomes

Students know how to safely handle hazardous substances. They are able to conduct simple experimental operations of organic chemistry. They are able to analyse the yield and purity of the products and identify possible error sources. They are able to connect the theoretical aspects covered in the lecture with practical experiments in the laboratory.

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

P (7)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

Vortestate/Nachtestate (pre and post-experiment examination talks approx. 15 minutes each, log approx. 5 to 10 pages each) and assessment of practical performance (2 to 4 random examinations)
Language of assessment: German and/or English
Assessment offered: Once a year, summer semester

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

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

§ 42 I Nr. 2

Module appears in

First state examination for the teaching degree Grundschule Chemistry (2015)
First state examination for the teaching degree Realschule Chemistry (2015)
First state examination for the teaching degree Mittelschule Chemistry (2015)
First state examination for the teaching degree Mittelschule Chemistry (2020 (Prüfungsordnungsversion 2015))

Module title			Abbreviation
Physical Chemistry (teaching degree for secondary schools)			08-PC-LAGMR-152-m01
Module coordinator		**Module offered by**	
lecturer of lecture "Thermodynamik, Kinetik, Elektrochemie für Studierende der Biologie, Lebensmittelchemie and des Lehramtes Chemie GHR"		Institute of Physical and Theoretical Chemistry	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
6	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

This module discusses the fundamental principles of thermodynamics, kinetics and electrochemistry.

Intended learning outcomes

Students have become familiar with the fundamental principles of thermodynamics, kinetics and electrochemistry. They are able to understand and explain fundamental processes in nature and engineering.

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

V (2) + Ü (1) + V (1) + Ü (1)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 90 to 180 minutes) or
b) oral examination of one candidate each (20 to 30 minutes) or
c) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or
d) log (approx. 20 pages) or
e) presentation (approx. 30 minutes)
Language of assessment: German and/or English

Allocation of places

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Additional information

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Workload

180 h

Teaching cycle

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

§ 42 I Nr. 1 and § 22 II Nr. 1 h)

Module appears in

First state examination for the teaching degree Grundschule Chemistry (2015)
First state examination for the teaching degree Grundschule Didactics in Chemistry (Primary School) (2015)
First state examination for the teaching degree Realschule Chemistry (2015)
First state examination for the teaching degree Sonderpädagogik Didactics in Chemistry (Middle School) (2015)
First state examination for the teaching degree Mittelschule Chemistry (2015)
First state examination for the teaching degree Mittelschule Didactics in Chemistry (Middle School) (2015)
First state examination for the teaching degree Mittelschule Chemistry (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Mittelschule Didactics in Chemistry (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Didactics in Chemistry (Middle School) (2020 (Prüfungsordnungsversion 2015))

Module title			Abbreviation
Biochemistry 1			08-BC1-152-m01
Module coordinator		**Module offered by**	
holder of the Chair of Biochemistry		Chair of Biochemistry	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

Comprising lectures and exercises, this module acquaints students with the fundamental principles of biochemistry. A particular focus is on the biochemistry of proteins (amino acids, peptide bonds, primary, secondary, tertiary and quaternary structures), catalytic strategies and enzyme kinetics, carbohydrate metabolism (glycolysis, gluconeogenesis, citric acid cycle, cellular respiration, photosynthesis), fatty acid metabolism (beta oxidation, fatty acid synthesis), nucleotide metabolism, the urea cycle and amino acid metabolism. The module also discusses the structure of the DNA and the central dogma of molecular biology.

Intended learning outcomes

Students have become familiar with the fundamental principles of the topics in biochemistry that were discussed in the module. They are able to describe the key biochemical processes in cellular systems.

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

V (2) + Ü (1)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

written examination (approx. 60 to 90 minutes)

Allocation of places

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Additional information

according to § 2 para. 2 sentence 2 APOLmCh in conjunction with No. II 2nd letter e) and No. II 1st letter c) of annex 1 to the APOLmCh and No. 3 of annex 3 to the APOLmCh

Workload

150 h

Teaching cycle

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

§ 42 I Nr. 2
§ 62 I Nr. 2

Module appears in

Bachelor's degree (1 major) Biochemistry (2015)
Bachelor's degree (1 major) Biology (2015)
Bachelor's degree (1 major) Chemistry (2015)
Bachelor's degree (1 major) Food Chemistry (2015)
Bachelor's degree (1 major) Functional Materials (2015)
First state examination for the teaching degree Grundschule Chemistry (2015)
First state examination for the teaching degree Realschule Chemistry (2015)
First state examination for the teaching degree Gymnasium Chemistry (2015)
First state examination for the teaching degree Mittelschule Chemistry (2015)
Bachelor's degree (1 major) Food Chemistry (2016)

Bachelor's degree (1 major) Biology (2017)
Bachelor's degree (1 major) Biochemistry (2017)
Bachelor's degree (1 major) Chemistry (2017)
Module studies (Bachelor) Chemistry (2019)
Bachelor's degree (1 major) Food Chemistry (2019)
Module studies (Bachelor) Orientierungsstudien (2020)
First state examination for the teaching degree Mittelschule Chemistry (2020 (Prüfungsordnungsversion 2015))
Bachelor's degree (1 major) Biology (2021)
Bachelor's degree (1 major) Functional Materials (2021)
Bachelor's degree (1 major) Food Chemistry (2021)
Bachelor's degree (1 major) Biochemistry (2022)
Bachelor's degree (1 major) Biology (2022)
Bachelor's degree (1 major) Functional Materials (2025)
Bachelor's degree (1 major) Food Chemistry (2025)

Module title			Abbreviation
Exercises in Experimental Presentation (teaching degree for secondary schools)			08-ÜiVmD-LAGMR-152-m01
Module coordinator		**Module offered by**	
lecturers of the three lectures offered in this module		Faculty of Chemistry and Pharmacy	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
6	(not) successfully completed	08-OCP-LAGMR	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

Students will design, prepare and deliver presentations on a range of topics in chemistry. Presentations will include live demonstrations.

Intended learning outcomes

Students are able to deliver a detailed and scientifically correct presentation on a given topic that is tailored to the specific needs of their audience. They are able to select experiments on the topic in question that support a particular teaching goal as well as to plan and safely perform them. Students will be expected to apply both their chemistry knowledge and skills and their teaching skills.

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

Ü (3) + Ü (3) + Ü (3)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

One talk each in the fields of inorganic, organic and physical chemistry including demonstrations (approx. 45 minutes each)
Language of assessment: German and/or English
Assessment offered: Once a year, winter semester

Allocation of places

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Additional information

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Workload

180 h

Teaching cycle

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

§ 42 I Nr. 3

Module appears in

First state examination for the teaching degree Grundschule Chemistry (2015)
First state examination for the teaching degree Realschule Chemistry (2015)
First state examination for the teaching degree Mittelschule Chemistry (2015)
First state examination for the teaching degree Mittelschule Chemistry (2020 (Prüfungsordnungsversion 2015))

Teaching

(12 ECTS credits)

Compulsory Courses

(12 ECTS credits)

Module title			Abbreviation
Introduction into Teaching Chemistry for Elementary, Secondary and Middle School			08-FD1-LAGMR-152-m01
Module coordinator		**Module offered by**	
holder of the Professorship of Didactics of Chemistry		Institute of Inorganic Chemistry	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
4	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	unknown	--	

Contents

No information on contents available.

Intended learning outcomes

No information on learning outcomes available.

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

V (2) + S (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 90 minutes) and b) presentation (approx. 20 minutes)
Language of assessment: German and/or English

Allocation of places

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Additional information

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Workload

120 h

Teaching cycle

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

§ 42 I Nr. 4

Module appears in

First state examination for the teaching degree Grundschule Chemistry (2015)
First state examination for the teaching degree Realschule Chemistry (2015)
First state examination for the teaching degree Mittelschule Chemistry (2015)
First state examination for the teaching degree Mittelschule Chemistry (2020 (Prüfungsordnungsversion 2015))

Module title			Abbreviation
Teaching Chemical Practice for Elementary and Secondary School			08-FD2-LAGM-152-m01
Module coordinator		**Module offered by**	
holder of the Professorship of Didactics of Chemistry		Institute of Inorganic Chemistry	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
2 semester	unknown	--	

Contents

No information on contents available.

Intended learning outcomes

No information on learning outcomes available.

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

S (2) + S (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) presentation with practical examination (approx. 30 minutes) and b) presentation (approx. 20 minutes)
Language of assessment: German and/or English

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

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

§ 38 I Nr. 1
§ 42 I Nr. 4 and § 36 I Nr. 7

Module appears in

First state examination for the teaching degree Grundschule Chemistry (2015)
First state examination for the teaching degree Grundschule Didactics in Chemistry (Primary School) (2015)
First state examination for the teaching degree Sonderpädagogik Didactics in Chemistry (Middle School) (2015)
First state examination for the teaching degree Mittelschule Chemistry (2015)
First state examination for the teaching degree Mittelschule Didactics in Chemistry (Middle School) (2015)
First state examination for the teaching degree Mittelschule Chemistry (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Mittelschule Didactics in Chemistry (Middle School) (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Sonderpädagogik Didactics in Chemistry (Middle School) (2020 (Prüfungsordnungsversion 2015))

Module title			Abbreviation
Chemistry in Elementary and Secondary School			08-FD3-LAGM-152-m01
Module coordinator		**Module offered by**	
holder of the Professorship of Didactics of Chemistry		Institute of Inorganic Chemistry	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
3	(not) successfully completed	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	unknown	--	

Contents

No information on contents available.

Intended learning outcomes

No information on learning outcomes available.

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

S (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

presentation (approx. 20 minutes)
Language of assessment: German and/or English

Allocation of places

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Additional information

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Workload

90 h

Teaching cycle

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

§ 42 I Nr. 4

Module appears in

First state examination for the teaching degree Grundschule Chemistry (2015)
First state examination for the teaching degree Mittelschule Chemistry (2015)
First state examination for the teaching degree Mittelschule Chemistry (2020 (Prüfungsordnungsversion 2015))

Paper

(4 ECTS credits)

Students studying for a teaching degree Grundschule must complete a practical training in didactics and teaching methodology (studienbegleitendes fachdidaktisches Praktikum) which refers to one of the subjects they selected as vertieft studiertes Fach (subject studied with a focus on the scientific discipline) pursuant to Section 34 Subsection 1 No. 4 LPO I (examination regulations for teaching-degree programmes). The obligatory accompanying tutorial is offered by the respective subject. The ECTS credits obtained are counted in the subject Erziehungswissenschaften pursuant to Section 10 Subsection 3 LASPO (general academic and examination regulations for teaching-degree programms).

Module title			Abbreviation
Internship at Elementary Schools			08-Ch-SBPrakt-LAGS-152-m01
Module coordinator		**Module offered by**	
holder of the Professorship of Didactics of Chemistry		Faculty of Chemistry and Pharmacy	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
4	(not) successfully completed	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	unknown	--	

Contents

No information on contents available.

Intended learning outcomes

No information on learning outcomes available.

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

P (0) + S (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

term paper (written elaboration of teaching practice, approx. 8 pages)
Contents and duration of placement as specified in Section 34 Subsection 1 Sentence 1 No. 4 LPO I (examination regulations for teaching-degree programmes); participation in mandatory teaching practice, completion of all set tasks as specified by placement school.

Allocation of places

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Additional information

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Workload

120 h

Teaching cycle

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

§ 34 I 1 Nr. 4

Module appears in

First state examination for the teaching degree Grundschule Educational Science (2015)

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

(ECTS credits)

Teaching degree students must take modules worth a total of 15 ECTS credits in the area Freier Bereich (general as well as subject-specific electives) (Section 9 LASPO (general academic and examination regulations for teaching-degree programmes)). To achieve the required number of ECTS credits, students may take any modules from the areas below.
Freier Bereich -- interdisciplinary: The interdisciplinary additional offer for a teaching degree can be found in the respective Annex "Ergänzende Bestimmungen für den "Freien Bereich" im Rahmen des Studiums für ein Lehramt".

Subject-specific Extra Skills

(ECTS credits)

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

Module title			Abbreviation
Practical spectroscopy 2			08-AC-Spec-152-m01
Module coordinator		**Module offered by**	
lecturer of lecture "Praktische Spektroskopie 2"		Institute of Inorganic Chemistry	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
3	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

This module equips students with an advanced knowledge of metals, alloys and saline compounds. It focuses on their structures and properties, special material classes, reactivity and technical processes.

Intended learning outcomes

Students are able to describe the structure and properties of metals, alloys and saline compounds in an appropriate manner. They can list spectroscopic methods that can be used for the structural analysis of solids and can describe them in an appropriate manner.

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

V (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 90 to 180 minutes) or
b) oral examination of one candidate each (20 to 30 minutes) or
c) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or
d) log (approx. 20 pages) or
e) presentation (approx. 30 minutes)
Language of assessment: German and/or English

Allocation of places

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Additional information

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Workload

90 h

Teaching cycle

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

§ 22 II Nr. 1 h)
§ 22 II Nr. 2 f)
§ 22 II Nr. 3 f)

Module appears in

First state examination for the teaching degree Grundschule Chemistry (2015)
First state examination for the teaching degree Realschule Chemistry (2015)
First state examination for the teaching degree Gymnasium Chemistry (2015)
First state examination for the teaching degree Mittelschule Chemistry (2015)
First state examination for the teaching degree Mittelschule Chemistry (2020 (Prüfungsordnungsversion 2015))

Module title			Abbreviation
Practical spectroscopy 1			08-OC-Spec-152-m01
Module coordinator		**Module offered by**	
lecturer of lecture "Organische Chemie 2"		Institute of Organic Chemistry	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
3	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

This module introduces students to the spectroscopic methods of infrared spectroscopy, mass spectrometry and NMR spectroscopy.

Intended learning outcomes

Students are able to describe important spectroscopic methods, to evaluate a spectrum and to draw conclusions regarding the molecular structure.

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

V (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 90 to 180 minutes) or
b) oral examination of one candidate each (20 to 30 minutes) or
c) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or
d) log (approx. 20 pages) or
e) presentation (approx. 30 minutes)
Language of assessment: German and/or English

Allocation of places

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Additional information

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Workload

90 h

Teaching cycle

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

§ 22 II Nr. 1 h)
§ 22 II Nr. 2 f)
§ 62 I Nr. 2

Module appears in

Bachelor's degree (1 major) Functional Materials (2015)
First state examination for the teaching degree Grundschule Chemistry (2015)
First state examination for the teaching degree Realschule Chemistry (2015)
First state examination for the teaching degree Gymnasium Chemistry (2015)
First state examination for the teaching degree Mittelschule Chemistry (2015)
First state examination for the teaching degree Mittelschule Chemistry (2020 (Prüfungsordnungsversion 2015))

Module title			Abbreviation
Solid State Chemistry			08-AC-FK-152-m01
Module coordinator		**Module offered by**	
lecturer of lecture "Festkörperchemie" (Solid State Chemistry)		Institute of Inorganic Chemistry	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
3	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

This module equips students with an advanced knowledge of metals, alloys and saline compounds. It focuses on their structures and properties, special material classes, reactivity and technical processes.

Intended learning outcomes

Students are able to describe the structure and properties of metals, alloys and saline compounds in an appropriate manner. They are able to systemise them and characterise their structure and reactivity.

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

V (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 90 to 180 minutes) or
b) oral examination of one candidate each (20 to 30 minutes) or
c) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or
d) log (approx. 20 pages) or
e) presentation (approx. 30 minutes)
Language of assessment: German and/or English

Allocation of places

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Additional information

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Workload

90 h

Teaching cycle

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

§ 22 II Nr. 1 h)
§ 22 II Nr. 2 f)
§ 62 I Nr. 1

Module appears in

First state examination for the teaching degree Grundschule Chemistry (2015)
First state examination for the teaching degree Realschule Chemistry (2015)
First state examination for the teaching degree Gymnasium Chemistry (2015)
First state examination for the teaching degree Mittelschule Chemistry (2015)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
First state examination for the teaching degree Mittelschule Chemistry (2020 (Prüfungsordnungsversion 2015))
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2025)

Module title			Abbreviation
Elemental Organic Chemistry			08-AC-ELO-152-m01
Module coordinator		**Module offered by**	
lecturer of lecture "Elementorganische Chemie" (Elemental Organic Chemistry)		Institute of Inorganic Chemistry	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

This module equips students with an advanced knowledge of organometallics. It focuses on their structures and properties, special material classes, reactivity and technical processes.

Intended learning outcomes

Students are able to describe the structure and properties of organometallics in an appropriate manner. They are able to systemise them and characterise their structure and reactivity. In addition, they are able to develop and explain principles for the synthesis of elementary organic compounds.

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

V (2) + Ü (1)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 90 to 180 minutes) or
b) oral examination of one candidate each (20 to 30 minutes) or
c) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or
d) log (approx. 20 pages) or
e) presentation (approx. 30 minutes)
Language of assessment: German and/or English

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

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

§ 22 II Nr. 1 h)
§ 22 II Nr. 2 f)
§ 22 II Nr. 3 f)

Module appears in

Bachelor's degree (1 major) Biochemistry (2015)
First state examination for the teaching degree Grundschule Chemistry (2015)
First state examination for the teaching degree Realschule Chemistry (2015)
First state examination for the teaching degree Gymnasium Chemistry (2015)
First state examination for the teaching degree Mittelschule Chemistry (2015)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016)
Bachelor's degree (1 major) Biochemistry (2017)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)

First state examination for the teaching degree Mittelschule Chemistry (2020 (Prüfungsordnungsversion 2015))
Bachelor's degree (1 major) Biochemistry (2022)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2025)

Module title			Abbreviation
Organic Chemistry 3			08-OC3-152-m01
Module coordinator		**Module offered by**	
holder of the Professorship of Organic Chemistry		Institute of Organic Chemistry	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
6	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

This module focuses on polar rearrangements, olefination reactions, pericyclic reactions, carbenes, nitriles and radicals. It discusses the fundamental principles of stereoselective synthesis, asymmetric catalysis, organometallic chemistry and retrosynthesis.

Intended learning outcomes

Students are able to formulate olefination reactions. They are able to develop stereoselective syntheses and asymmetric catalyses. Students are able to describe organometallic reactions. They are able to conduct retrosynthetic analyses of molecules.

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

V (2) + Ü (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 90 to 180 minutes) or
b) oral examination of one candidate each (20 to 30 minutes) or
c) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or
d) log (approx. 20 pages) or
e) presentation (approx. 30 minutes)
Language of assessment: German and/or English

Allocation of places

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Additional information

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Workload

180 h

Teaching cycle

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

§ 22 II Nr. 1 h)
§ 22 II Nr. 2 f)
§ 22 II Nr. 3 f)

Module appears in

First state examination for the teaching degree Grundschule Chemistry (2015)
First state examination for the teaching degree Realschule Chemistry (2015)
First state examination for the teaching degree Gymnasium Chemistry (2015)
First state examination for the teaching degree Mittelschule Chemistry (2015)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
First state examination for the teaching degree Mittelschule Chemistry (2020 (Prüfungsordnungsversion 2015))
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2025)

Module title			Abbreviation
Organic Chemistry 4			08-OC4-152-m01
Module coordinator		**Module offered by**	
holder of the Chair of Organic Chemistry II		Institute of Organic Chemistry	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

This module discusses biologically important bonding classes, their reactions and syntheses, working with special hazardous substances, complicated working and synthesis techniques, purification methods and product analysis.

Intended learning outcomes

Students are able to name important heteroaromatics and to formulate their reactions and syntheses. They are able to characterise and categorise dyes. Students are able to describe the structure and selective synthesis of proteins. In addition, they are able to describe the structure of the DNA, carbohydrates, fats, terpenes and steroids.

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

V (2) + Ü (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 90 to 180 minutes) or
b) oral examination of one candidate each (20 to 30 minutes) or
c) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or
d) log (approx. 20 pages) or
e) presentation (approx. 30 minutes)
Language of assessment: German and/or English

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

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

§ 22 II Nr. 1 h)
§ 22 II Nr. 2 f)
§ 62 I Nr. 2

Module appears in

Bachelor's degree (1 major) Biochemistry (2015)
First state examination for the teaching degree Grundschule Chemistry (2015)
First state examination for the teaching degree Realschule Chemistry (2015)
First state examination for the teaching degree Gymnasium Chemistry (2015)
First state examination for the teaching degree Mittelschule Chemistry (2015)
Master's degree (1 major) Functional Materials (2016)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016)

Bachelor's degree (1 major) Biochemistry (2017)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
First state examination for the teaching degree Mittelschule Chemistry (2020 (Prüfungsordnungsversion 2015))
Bachelor's degree (1 major) Biochemistry (2022)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2025)

Module title			Abbreviation
Quantum Chemistry			08-TC-152-m01
Module coordinator		**Module offered by**	
lecturer of lecture "Quantenchemie"		Institute of Physical and Theoretical Chemistry	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
3	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

This module provides students with deeper insights into advanced topics in quantum chemistry. It focuses on spin, the Pauli principle, Slater determinants, the Hartree-Fock method, correlation energy, configuration interaction and excited states, the Born-Oppenheimer approximation and bonding models of H2+.

Intended learning outcomes

Students are able to describe excited states of molecules with the help of key concepts and models.

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

V (2) + Ü (1)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 90 to 180 minutes) or
b) oral examination of one candidate each (20 to 30 minutes) or
c) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or
d) log (approx. 20 pages) or
e) presentation (approx. 30 minutes)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

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Additional information

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Workload

90 h

Teaching cycle

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

§ 22 II Nr. 1 h)
§ 22 II Nr. 2 f)
§ 22 II Nr. 3 f)

Module appears in

Bachelor's degree (1 major) Chemistry (2015)
Bachelor's degree (1 major) Mathematics (2015)
Bachelor's degree (1 major) Computational Mathematics (2015)
Bachelor's degree (1 major) Functional Materials (2015)
First state examination for the teaching degree Grundschule Chemistry (2015)
First state examination for the teaching degree Realschule Chemistry (2015)
First state examination for the teaching degree Gymnasium Chemistry (2015)
First state examination for the teaching degree Mittelschule Chemistry (2015)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016)

Bachelor's degree (1 major) Biochemistry (2017)
Bachelor's degree (1 major) Chemistry (2017)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
First state examination for the teaching degree Mittelschule Chemistry (2020 (Prüfungsordnungsversion 2015))
Bachelor's degree (1 major) Functional Materials (2021)
Bachelor's degree (1 major) Biochemistry (2022)
Bachelor's degree (1 major) Mathematics (2023)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2025)
Bachelor's degree (1 major) Functional Materials (2025)

Module title	Abbreviation
Symmetry, chemical bonding and light - Part 1	08-PC-SBL1-152-m01

Module coordinator	Module offered by
lecturer of lecture "Symmetrie, chemische Bindung and Licht"	Institute of Physical and Theoretical Chemistry

ECTS	Method of grading	Only after succ. compl. of module(s)
6	numerical grade	--

Duration	Module level	Other prerequisites
1 semester	undergraduate	--

Contents

This module provides an introduction to the symmetry of molecules. It focuses on group theory, symmetry operations, point groups, character tables and selection rules. The module deals with the chemical bond based on the qualitative MO theory and gives an introduction to the fundamentals of computational chemistry.

Intended learning outcomes

Students are able to analyse the symmetry of molecules. They are able to draw conclusions about the spectroscopic properties of a particular molecule from the symmetry of that molecule.

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

V (3) + Ü (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 90 to 180 minutes) or
b) oral examination of one candidate each (20 to 30 minutes) or
c) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or
d) log (approx. 20 pages) or
e) presentation (approx. 30 minutes)
Language of assessment: German and/or English

Allocation of places

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Additional information

--

Workload

180 h

Teaching cycle

--

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

§ 22 II Nr. 1 h)
§ 22 II Nr. 2 f)
§ 22 II Nr. 3 f)

Module appears in

First state examination for the teaching degree Grundschule Chemistry (2015)
First state examination for the teaching degree Realschule Chemistry (2015)
First state examination for the teaching degree Gymnasium Chemistry (2015)
First state examination for the teaching degree Mittelschule Chemistry (2015)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
First state examination for the teaching degree Mittelschule Chemistry (2020 (Prüfungsordnungsversion 2015))
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2025)

Module title			Abbreviation
Toxicology and legal studies			03-TR-152-m01
Module coordinator		**Module offered by**	
lecturer of lecture "Toxikologie und Rechtskunde"		Faculty of Medicine	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
3	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

Basics of legal regulations for chemists (handling and transportation of hazardous materials), fundamentals of toxicology.

Intended learning outcomes

The students master the basics of legal regulations for chemists (handling and transport of hazardous substances) as well as the fundamentals of toxicology.

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

V (1) + V (1)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

written examination (approx. 90 minutes)

Allocation of places

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Additional information

according to § 2 para. 2 sentence 2 APOLmCh in conjunction with No. II 2nd letter g) and i) and No. II 1st letter d) of annex 1 to the APOLmCh and No. 5 and 6 of annex 3 to the APOLmCh

Workload

90 h

Teaching cycle

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

§ 22 II Nr. 1 h)
§ 22 II Nr. 2 f)
§ 22 II Nr. 3 f)

Module appears in

Bachelor's degree (1 major) Biochemistry (2015)
Bachelor's degree (1 major) Chemistry (2015)
Bachelor's degree (1 major) Food Chemistry (2015)
First state examination for the teaching degree Grundschule Chemistry (2015)
First state examination for the teaching degree Grundschule Didactics in Chemistry (Primary School) (2015)
First state examination for the teaching degree Realschule Chemistry (2015)
First state examination for the teaching degree Gymnasium Chemistry (2015)
First state examination for the teaching degree Sonderpädagogik Didactics in Chemistry (Middle School) (2015)
First state examination for the teaching degree Mittelschule Chemistry (2015)
First state examination for the teaching degree Mittelschule Didactics in Chemistry (Middle School) (2015)
Master's degree (1 major) Chemistry (2016)
Bachelor's degree (1 major) Food Chemistry (2016)
Bachelor's degree (1 major) Biochemistry (2017)

Bachelor's degree (1 major) Chemistry (2017)
Master's degree (1 major) Chemistry (2018)
Bachelor's degree (1 major) Food Chemistry (2019)
First state examination for the teaching degree Mittelschule Chemistry (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Mittelschule Didactics in Chemistry (Middle School) (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Sonderpädagogik Didactics in Chemistry (Middle School) (2020 (Prüfungsordnungsversion 2015))
Bachelor's degree (1 major) Food Chemistry (2021)
Bachelor's degree (1 major) Biochemistry (2022)
Master's degree (1 major) Chemistry (2024)
Bachelor's degree (1 major) Food Chemistry (2025)

Module title			Abbreviation
Training for Exams in Inorganic Chemistry			08-PVAC-152-m01
Module coordinator		**Module offered by**	
lecturer of the seminar		Faculty of Chemistry and Pharmacy	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
2	(not) successfully completed	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

This module gives students the opportunity to revise topics in inorganic chemistry that are likely to be covered on the state examination and try exam papers from previous years.

Intended learning outcomes

Students are able to solve selected questions on inorganic chemistry that were asked in the state examination in previous years.

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

S (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

2 to 4 short talks on selected assignments (approx. 10 minutes each)
Language of assessment: German and/or English

Allocation of places

--

Additional information

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Workload

60 h

Teaching cycle

--

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

§ 22 II Nr. 1 h)
§ 22 II Nr. 2 f)
§ 22 II Nr. 3 f)

Module appears in

First state examination for the teaching degree Grundschule Chemistry (2015)
First state examination for the teaching degree Realschule Chemistry (2015)
First state examination for the teaching degree Gymnasium Chemistry (2015)
First state examination for the teaching degree Mittelschule Chemistry (2015)
First state examination for the teaching degree Mittelschule Chemistry (2020 (Prüfungsordnungsversion 2015))

Module title			Abbreviation
Training for Exams in Organic Chemistry			08-PVOC-152-m01
Module coordinator		**Module offered by**	
lecturer of the seminar		Faculty of Chemistry and Pharmacy	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
3	(not) successfully completed	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

This module gives students the opportunity to revise topics in organic chemistry that are likely to be covered on the state examination and try exam papers from previous years.

Intended learning outcomes

Students are able to solve selected questions on organic chemistry that were asked in the state examination in previous years.

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

S (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

4 to 8 short talks on selected assignments (approx. 10 minutes each)
Language of assessment: German and/or English

Allocation of places

--

Additional information

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Workload

90 h

Teaching cycle

--

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

§ 22 II Nr. 1 h)
§ 22 II Nr. 2 f)
§ 22 II Nr. 3 f)

Module appears in

First state examination for the teaching degree Grundschule Chemistry (2015)
First state examination for the teaching degree Realschule Chemistry (2015)
First state examination for the teaching degree Gymnasium Chemistry (2015)
First state examination for the teaching degree Mittelschule Chemistry (2015)
First state examination for the teaching degree Mittelschule Chemistry (2020 (Prüfungsordnungsversion 2015))

Module title			Abbreviation
Training for Exams in Chemistry Teaching for Elementary, Secondary and Middle School Teachers			08-FD-PVLAGMRS-152-m01
Module coordinator		**Module offered by**	
holder of the Professorship of Didactics of Chemistry		Institute of Inorganic Chemistry	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
2	(not) successfully completed	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	unknown	--	

Contents

No information on contents available.

Intended learning outcomes

No information on learning outcomes available.

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

S (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

talk on 3 selected assignments (approx. 30 minutes each)
Language of assessment: German and/or English

Allocation of places

--

Additional information

--

Workload

60 h

Teaching cycle

--

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

§ 22 II Nr. 1 h)
§ 22 II Nr. 2 f)

Module appears in

First state examination for the teaching degree Grundschule Chemistry (2015)
First state examination for the teaching degree Realschule Chemistry (2015)
First state examination for the teaching degree Mittelschule Chemistry (2015)
First state examination for the teaching degree Mittelschule Chemistry (2020 (Prüfungsordnungsversion 2015))

Module title			Abbreviation
Instructions for Scientific Research			08-FD-WA-152-m01
Module coordinator		**Module offered by**	
holder of the Professorship of Didactics of Chemistry		Institute of Inorganic Chemistry	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
2	(not) successfully completed	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	unknown	--	

Contents

No information on contents available.

Intended learning outcomes

No information on learning outcomes available.

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

S (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

presentation (approx. 30 minutes)
Language of assessment: German and/or English

Allocation of places

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Additional information

--

Workload

60 h

Teaching cycle

--

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

§ 22 II Nr. 1 h)
§ 22 II Nr. 2 f)
§ 22 II Nr. 3 f)

Module appears in

First state examination for the teaching degree Grundschule Chemistry (2015)
First state examination for the teaching degree Realschule Chemistry (2015)
First state examination for the teaching degree Gymnasium Chemistry (2015)
First state examination for the teaching degree Mittelschule Chemistry (2015)
First state examination for the teaching degree Mittelschule Chemistry (2020 (Prüfungsordnungsversion 2015))

Module title			Abbreviation
Chemistry SchoolLabs			08-FD-LLL-152-m01
Module coordinator		**Module offered by**	
holder of the Professorship of Didactics of Chemistry		Institute of Inorganic Chemistry	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
2	(not) successfully completed	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	unknown	--	

Contents

No information on contents available.

Intended learning outcomes

No information on learning outcomes available.

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

P (3)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

practical assignment (successful supervision of 2 sessions in learn-teach-lab, approx. 4 to 6 hours each)
Language of assessment: German and/or English

Allocation of places

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Additional information

--

Workload

60 h

Teaching cycle

--

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

§ 22 II Nr. 1 h)
§ 22 II Nr. 2 f)
§ 22 II Nr. 3 f)

Module appears in

First state examination for the teaching degree Grundschule English (2009)
First state examination for the teaching degree Grundschule Biology (2009)
First state examination for the teaching degree Grundschule Chemistry (2009)
First state examination for the teaching degree Grundschule Geography (2009)
First state examination for the teaching degree Grundschule Protestant Theology (2009)
First state examination for the teaching degree Grundschule German (2009)
First state examination for the teaching degree Grundschule History (2009)
First state examination for the teaching degree Grundschule History (2015)
First state examination for the teaching degree Grundschule Catholic Theology (2009)
First state examination for the teaching degree Grundschule Mathematics (2009)
First state examination for the teaching degree Grundschule Music (2009)
First state examination for the teaching degree Grundschule Physics (2009)
First state examination for the teaching degree Grundschule Social Science (2009)
First state examination for the teaching degree Grundschule Science of Sport (2009)
First state examination for the teaching degree Hauptschule English (2009)

First state examination for the teaching degree Hauptschule Biology (2009)
First state examination for the teaching degree Hauptschule Chemistry (2009)
First state examination for the teaching degree Hauptschule Geography (2009)
First state examination for the teaching degree Hauptschule Protestant Theology (2009)
First state examination for the teaching degree Hauptschule German (2009)
First state examination for the teaching degree Hauptschule History (2009)
First state examination for the teaching degree Hauptschule Catholic Theology (2009)
First state examination for the teaching degree Hauptschule Mathematics (2009)
First state examination for the teaching degree Hauptschule Music (2009)
First state examination for the teaching degree Hauptschule Physics (2009)
First state examination for the teaching degree Hauptschule Social Science (2009)
First state examination for the teaching degree Hauptschule Science of Sport (2009)
First state examination for the teaching degree Realschule English (2009)
First state examination for the teaching degree Realschule Biology (2009)
First state examination for the teaching degree Realschule Chemistry (2009)
First state examination for the teaching degree Realschule Geography (2009)
First state examination for the teaching degree Realschule Protestant Theology (2009)
First state examination for the teaching degree Realschule French Studies (2009)
First state examination for the teaching degree Realschule German (2009)
First state examination for the teaching degree Realschule History (2009)
First state examination for the teaching degree Realschule Computer Science (2012)
First state examination for the teaching degree Realschule Catholic Theology (2009)
First state examination for the teaching degree Realschule Mathematics (2009)
First state examination for the teaching degree Realschule Music (2009)
First state examination for the teaching degree Realschule Physics (2009)
First state examination for the teaching degree Realschule Science of Sport (2009)
First state examination for the teaching degree Gymnasium English (2009)
First state examination for the teaching degree Gymnasium Biology (2009)
First state examination for the teaching degree Gymnasium Chemistry (2009)
First state examination for the teaching degree Gymnasium Geography (2009)
First state examination for the teaching degree Gymnasium French Studies (2009)
First state examination for the teaching degree Gymnasium German (2009)
First state examination for the teaching degree Gymnasium History (2009)
First state examination for the teaching degree Gymnasium Greek Philology (2009)
First state examination for the teaching degree Gymnasium Computer Science (2009)
First state examination for the teaching degree Gymnasium Italian Studies (2009)
First state examination for the teaching degree Gymnasium Catholic Theology (2009)
First state examination for the teaching degree Gymnasium Latin Philology (2009)
First state examination for the teaching degree Gymnasium Mathematics (2012)
First state examination for the teaching degree Gymnasium Mathematics (2009)
First state examination for the teaching degree Gymnasium Music (2009)
First state examination for the teaching degree Gymnasium Physics (2009)
First state examination for the teaching degree Gymnasium Russian (2009)
First state examination for the teaching degree Gymnasium Social Science (2009)
First state examination for the teaching degree Gymnasium Spanish Studies (2009)
First state examination for the teaching degree Gymnasium Science of Sport (2009)
First state examination for the teaching degree Gymnasium Music Education, Advanced Studies (2009)
First state examination for the teaching degree Sonderpädagogik Pedagogy of Secondary Education (2009)
First state examination for the teaching degree Sonderpädagogik Pedagogy of Primary Education (2009)
First state examination for the teaching degree Sonderpädagogik Teaching at the German Mittelschule (2013)
First state examination for the teaching degree Mittelschule English (2013)
First state examination for the teaching degree Mittelschule Biology (2013)
First state examination for the teaching degree Mittelschule Chemistry (2013)

First state examination for the teaching degree Mittelschule Geography (2013)
First state examination for the teaching degree Mittelschule Protestant Theology (2013)
First state examination for the teaching degree Mittelschule German (2013)
First state examination for the teaching degree Mittelschule History (2013)
First state examination for the teaching degree Mittelschule Catholic Theology (2013)
First state examination for the teaching degree Mittelschule Mathematics (2013)
First state examination for the teaching degree Mittelschule Physics (2013)
First state examination for the teaching degree Mittelschule Social Science (2013)
First state examination for the teaching degree Mittelschule Science of Sport (2013)
First state examination for the teaching degree Grundschule English (2015)
First state examination for the teaching degree Grundschule Biology (2015)
First state examination for the teaching degree Grundschule Chemistry (2015)
First state examination for the teaching degree Grundschule Geography (2015)
First state examination for the teaching degree Grundschule German (2015)
First state examination for the teaching degree Grundschule Catholic Theology (2015)
First state examination for the teaching degree Grundschule Mathematics (2015)
First state examination for the teaching degree Grundschule Pedagogy of Primary Education (2015)
First state examination for the teaching degree Grundschule Physics (2015)
First state examination for the teaching degree Grundschule Social Science (2015)
First state examination for the teaching degree Grundschule Didactics in English (Primary School) (2015)
First state examination for the teaching degree Grundschule Didactics in Biology (Primary School) (2015)
First state examination for the teaching degree Grundschule Didactics in Chemistry (Primary School) (2015)
First state examination for the teaching degree Grundschule Didactics in Geography (Primary School) (2015)
First state examination for the teaching degree Grundschule Didactics in German (Primary School) (2015)
First state examination for the teaching degree Grundschule Didactics in History (Primary School) (2015)
First state examination for the teaching degree Grundschule Didactics in Catholic Theology (Primary School) (2015)
First state examination for the teaching degree Grundschule Art Education in Primary School (2015)
First state examination for the teaching degree Grundschule Didactics in Science of Sport (Primary School) (2015)
First state examination for the teaching degree Grundschule Didactics in Mathematics (Primary School) (2015)
First state examination for the teaching degree Grundschule Music Education in Primary School (2015)
First state examination for the teaching degree Grundschule Didactics in Physics (Primary School) (2015)
First state examination for the teaching degree Grundschule Didactics in Social Science (Primary School) (2015)
First state examination for the teaching degree Grundschule Science of Sport (2015)
First state examination for the teaching degree Realschule English (2015)
First state examination for the teaching degree Realschule Biology (2015)
First state examination for the teaching degree Realschule Chemistry (2015)
First state examination for the teaching degree Realschule Geography (2015)
First state examination for the teaching degree Realschule Protestant Theology (2015)
First state examination for the teaching degree Realschule French Studies (2015)
First state examination for the teaching degree Realschule German (2015)
First state examination for the teaching degree Realschule History (2015)
First state examination for the teaching degree Realschule Computer Science (2015)
First state examination for the teaching degree Realschule Catholic Theology (2015)
First state examination for the teaching degree Realschule Mathematics (2015)
First state examination for the teaching degree Realschule Physics (2015)
First state examination for the teaching degree Realschule Science of Sport (2015)
First state examination for the teaching degree Gymnasium English (2015)
First state examination for the teaching degree Gymnasium Biology (2015)
First state examination for the teaching degree Gymnasium Chemistry (2015)
First state examination for the teaching degree Gymnasium Geography (2015)
First state examination for the teaching degree Gymnasium French Studies (2015)
First state examination for the teaching degree Gymnasium German (2015)

First state examination for the teaching degree Gymnasium History (2015)
First state examination for the teaching degree Gymnasium Greek Philology (2015)
First state examination for the teaching degree Gymnasium Computer Science (2015)
First state examination for the teaching degree Gymnasium Italian Studies (2015)
First state examination for the teaching degree Gymnasium Catholic Theology (2015)
First state examination for the teaching degree Gymnasium Latin Philology (2015)
First state examination for the teaching degree Gymnasium Mathematics (2015)
First state examination for the teaching degree Gymnasium Physics (2015)
First state examination for the teaching degree Gymnasium Russian (2015)
First state examination for the teaching degree Gymnasium Social Science (2015)
First state examination for the teaching degree Gymnasium Spanish Studies (2015)
First state examination for the teaching degree Gymnasium Science of Sport (2015)
First state examination for the teaching degree Sonderpädagogik Pedagogy of Primary Education (2015)
First state examination for the teaching degree Sonderpädagogik Didactics in German (Primary School) (2015)
First state examination for the teaching degree Sonderpädagogik Didactics in Catholic Theology (Primary School) (2015)
First state examination for the teaching degree Sonderpädagogik Art Education in Primary School (2015)
First state examination for the teaching degree Sonderpädagogik Didactics in Science of Sport (Primary School) (2015)
First state examination for the teaching degree Sonderpädagogik Didactics in Mathematics (Primary School) (2015)
First state examination for the teaching degree Sonderpädagogik Music Education in Primary School (2015)
First state examination for the teaching degree Sonderpädagogik Didactics in English (Middle School) (2015)
First state examination for the teaching degree Sonderpädagogik Ergonomics (Teaching at the German Mittelschule) (2015)
First state examination for the teaching degree Sonderpädagogik Didactics in Biology (Middle School) (2015)
First state examination for the teaching degree Sonderpädagogik Didactics in Chemistry (Middle School) (2015)
First state examination for the teaching degree Sonderpädagogik Didactics in Geography (Middle School) (2015)
First state examination for the teaching degree Sonderpädagogik Didactics in Protestant Theology (Middle School) (2015)
First state examination for the teaching degree Sonderpädagogik Didactics in German (Middle School) (2015)
First state examination for the teaching degree Sonderpädagogik Didactics in History (Middle School) (2015)
First state examination for the teaching degree Sonderpädagogik Didactics in Catholic Theology (Middle School) (2015)
First state examination for the teaching degree Sonderpädagogik Art Education in Middle School (2015)
First state examination for the teaching degree Sonderpädagogik Didactics in Science of Sport (Middle School) (2015)
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First state examination for the teaching degree Sonderpädagogik Music Education in Middle School (2015)
First state examination for the teaching degree Sonderpädagogik Didactics in Physics (Middle School) (2015)
First state examination for the teaching degree Sonderpädagogik Didactics in Social Science (Middle School) (2015)
First state examination for the teaching degree Sonderpädagogik Teaching at the German Mittelschule (2015)
First state examination for the teaching degree Mittelschule English (2015)
First state examination for the teaching degree Mittelschule Biology (2015)
First state examination for the teaching degree Mittelschule Chemistry (2015)
First state examination for the teaching degree Mittelschule Geography (2015)
First state examination for the teaching degree Mittelschule Protestant Theology (2015)
First state examination for the teaching degree Mittelschule German (2015)
First state examination for the teaching degree Mittelschule History (2015)
First state examination for the teaching degree Mittelschule Catholic Theology (2015)
First state examination for the teaching degree Mittelschule Mathematics (2015)

First state examination for the teaching degree Mittelschule Physics (2015)
First state examination for the teaching degree Mittelschule Social Science (2015)
First state examination for the teaching degree Mittelschule Didactics in English (Middle School) (2015)
First state examination for the teaching degree Mittelschule Ergonomics (Teaching at the German Mittelschule) (2015)
First state examination for the teaching degree Mittelschule Didactics in Biology (Middle School) (2015)
First state examination for the teaching degree Mittelschule Didactics in Chemistry (Middle School) (2015)
First state examination for the teaching degree Mittelschule Didactics in Geography (Middle School) (2015)
First state examination for the teaching degree Mittelschule Didactics in Protestant Theology (Middle School) (2015)
First state examination for the teaching degree Mittelschule Didactics in German (Middle School) (2015)
First state examination for the teaching degree Mittelschule Didactics in History (Middle School) (2015)
First state examination for the teaching degree Mittelschule Didactics in Catholic Theology (Middle School) (2015)
First state examination for the teaching degree Mittelschule Art Education in Middle School (2015)
First state examination for the teaching degree Mittelschule Didactics in Science of Sport (Middle School) (2015)
First state examination for the teaching degree Mittelschule Didactics in Mathematics (Middle School) (2015)
First state examination for the teaching degree Mittelschule Music Education in Middle School (2015)
First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (2015)
First state examination for the teaching degree Mittelschule Didactics in Social Science (Middle School) (2015)
First state examination for the teaching degree Mittelschule Science of Sport (2015)
First state examination for the teaching degree Mittelschule Teaching at the German Mittelschule (2015)
First state examination for the teaching degree Grundschule Protestant Theology (2015)
First state examination for the teaching degree Grundschule Music (2015)
First state examination for the teaching degree Grundschule Didactics in Protestant Theology (Primary School) (2015)
First state examination for the teaching degree Realschule Music (2015)
First state examination for the teaching degree Gymnasium Music (2015)
First state examination for the teaching degree Gymnasium Music Education, Advanced Studies (2015)
First state examination for the teaching degree Sonderpädagogik Didactics in Protestant Theology (Primary School) (2015)
First state examination for the teaching degree Mittelschule Music (2015)
First state examination for the teaching degree Gymnasium French Studies (2016)
First state examination for the teaching degree Gymnasium Italian Studies (2016)
First state examination for the teaching degree Gymnasium Spanish Studies (2016)
First state examination for the teaching degree Realschule French Studies (2016)
First state examination for the teaching degree Grundschule English (2016)
First state examination for the teaching degree Grundschule Didactics in English (Primary School) (2016)
First state examination for the teaching degree Realschule English (2016)
First state examination for the teaching degree Gymnasium English (2016)
First state examination for the teaching degree Mittelschule English (2016)
First state examination for the teaching degree Mittelschule Didactics in English (Middle School) (2016)
First state examination for the teaching degree Sonderpädagogik Didactics in English (Middle School) (2016)
First state examination for the teaching degree Gymnasium Greek Philology (2018)
First state examination for the teaching degree Grundschule Physics (2018)
First state examination for the teaching degree Grundschule Didactics in Physics (Primary School) (2018)
First state examination for the teaching degree Realschule Physics (2018)
First state examination for the teaching degree Gymnasium Physics (2018)
First state examination for the teaching degree Mittelschule Physics (2018)
First state examination for the teaching degree Sonderpädagogik Didactics in Physics (Middle School) (2018)
First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (2018)
First state examination for the teaching degree Gymnasium Mathematics (2019)
First state examination for the teaching degree Mittelschule Biology (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Didactics in Biology (Middle School) (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Mittelschule Didactics in Biology (Middle School) (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Mittelschule Chemistry (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Mittelschule Didactics in Chemistry (Middle School) (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Mittelschule German (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Mittelschule Didactics in German (Middle School) (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Mittelschule English (2020 (Prüfungsordnungsversion 2016))
First state examination for the teaching degree Mittelschule Didactics in English (Middle School) (2020 (Prüfungsordnungsversion 2016))
First state examination for the teaching degree Mittelschule Protestant Theology (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Mittelschule Didactics in Protestant Theology (Middle School) (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Mittelschule Geography (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Mittelschule Didactics in Geography (Middle School) (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Mittelschule History (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Mittelschule Didactics in History (Middle School) (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Mittelschule Catholic Theology (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Mittelschule Didactics in Catholic Theology (Middle School) (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Mittelschule Mathematics (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Mittelschule Didactics in Mathematics (Middle School) (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Mittelschule Art Education in Middle School (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Mittelschule Science of Sport (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Mittelschule Didactics in Science of Sport (Middle School) (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Mittelschule Music (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Mittelschule Music Education in Middle School (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Mittelschule Teaching at the German Mittelschule (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Sonderpädagogik Didactics in English (Middle School) (2020 (Prüfungsordnungsversion 2016))
First state examination for the teaching degree Sonderpädagogik Didactics in Chemistry (Middle School) (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Sonderpädagogik Didactics in Geography (Middle School) (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Sonderpädagogik Didactics in Protestant Theology (Middle School) (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Sonderpädagogik Didactics in German (Middle School) (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Sonderpädagogik Didactics in History (Middle School) (2020 (Prüfungsordnungsversion 2015))

First state examination for the teaching degree Sonderpädagogik Didactics in Catholic Theology (Middle School) (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Sonderpädagogik Art Education in Middle School (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Sonderpädagogik Didactics in Science of Sport (Middle School) (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Sonderpädagogik Didactics in Mathematics (Middle School) (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Sonderpädagogik Music Education in Middle School (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Sonderpädagogik Teaching at the German Mittelschule (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Sonderpädagogik Art Education in Primary School (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Sonderpädagogik Music Education in Primary School (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Sonderpädagogik Didactics in Science of Sport (Primary School) (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Sonderpädagogik Didactics in German (Primary School) (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Sonderpädagogik Didactics in Mathematics (Primary School) (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Sonderpädagogik Pedagogy of Primary Education (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Sonderpädagogik Didactics in Protestant Theology (Primary School) (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Sonderpädagogik Didactics in Catholic Theology (Primary School) (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Grundschule Didactics in Physics (Primary School) (2020)
First state examination for the teaching degree Grundschule Physics (2020)
First state examination for the teaching degree Gymnasium Physics (2020)
First state examination for the teaching degree Realschule Physics (2020)
First state examination for the teaching degree Sonderpädagogik Didactics in Physics (Middle School) (2020)
First state examination for the teaching degree Mittelschule Didactics in Physics (Middle School) (2020)
First state examination for the teaching degree Mittelschule Physics (2020)
First state examination for the teaching degree Grundschule Political and Social Studies (2020)
First state examination for the teaching degree Grundschule Didactics in Political and Social Studies (Primary School) (2020)
First state examination for the teaching degree Sonderpädagogik MS-Didaktik Career and Economics (2020)
First state examination for the teaching degree Sonderpädagogik Didactics in Political and Social Studies (Secondary School) (2020)
First state examination for the teaching degree Mittelschule MS-Didaktik Career and Economics (2020)
First state examination for the teaching degree Mittelschule Didactics in Political and Social Studies (Secondary School) (2020)
First state examination for the teaching degree Mittelschule Political and Social Studies (2020)
First state examination for the teaching degree Gymnasium Political and Social Studies (2020)
First state examination for the teaching degree Grundschule History (2021)
First state examination for the teaching degree Gymnasium History (2021)
First state examination for the teaching degree Realschule History (2021)
First state examination for the teaching degree Mittelschule History (2021)
First state examination for the teaching degree Grundschule Pedagogy of Primary Education (2021)
First state examination for the teaching degree Gymnasium English (2021)
First state examination for the teaching degree Gymnasium Philosophy and Ethics (2021)
First state examination for the teaching degree Sonderpädagogik Pedagogy of Primary Education (2021)

First state examination for the teaching degree Gymnasium Philosophy and Ethics (2022)
First state examination for the teaching degree Gymnasium Russian (2023)
First state examination for the teaching degree Gymnasium Mathematics (2023)
First state examination for the teaching degree Gymnasium English (2023)
First state examination for the teaching degree Realschule English (2023)
First state examination for the teaching degree Grundschule English (2023)
First state examination for the teaching degree Grundschule Didactics in English (Primary School) (2023)
First state examination for the teaching degree Mittelschule English (2023)
First state examination for the teaching degree Mittelschule Didactics in English (Middle School) (2023)
First state examination for the teaching degree Sonderpädagogik Didactics in English (Middle School) (2023)
First state examination for the teaching degree Gymnasium Geography (2023)
First state examination for the teaching degree Realschule Geography (2023)
First state examination for the teaching degree Grundschule Geography (2023)
First state examination for the teaching degree Mittelschule Geography (2023)
First state examination for the teaching degree Grundschule German (2024)
First state examination for the teaching degree Gymnasium German (2024)
First state examination for the teaching degree Realschule German (2024)
First state examination for the teaching degree Sonderpädagogik Didactics in German (Middle School) (2024)
First state examination for the teaching degree Mittelschule Didactics in German (Middle School) (2024)
First state examination for the teaching degree Grundschule Didactics in German (Primary School) (2024)
First state examination for the teaching degree Sonderpädagogik Didactics in German (Primary School) (2024)
First state examination for the teaching degree Mittelschule German (2024)
First state examination for the teaching degree Grundschule Music Education in Primary School (2024)
First state examination for the teaching degree Sonderpädagogik Music Education in Primary School (2024)
First state examination for the teaching degree Mittelschule Music Education in Middle School (2024)
First state examination for the teaching degree Sonderpädagogik Music Education in Middle School (2024)
First state examination for the teaching degree Gymnasium Latin Philology (2024)
First state examination for the teaching degree Gymnasium English (2024)
First state examination for the teaching degree Mittelschule MS-Didaktik Career and Economics (2024)
First state examination for the teaching degree Sonderpädagogik MS-Didaktik Career and Economics (2024)
First state examination for the teaching degree Grundschule History (2024)
First state examination for the teaching degree Gymnasium History (2024)
First state examination for the teaching degree Realschule History (2024)
First state examination for the teaching degree Mittelschule History (2024)
First state examination for the teaching degree Mittelschule Didactics in History (Middle School) (2024)
First state examination for the teaching degree Sonderpädagogik Didactics in History (Middle School) (2024)
First state examination for the teaching degree Grundschule Didactics in History (Primary School) (2024)
First state examination for the teaching degree Gymnasium Greek Philology (2024)
First state examination for the teaching degree Grundschule Art Education in Primary School (2024)
First state examination for the teaching degree Sonderpädagogik Art Education in Primary School (2024)
First state examination for the teaching degree Sonderpädagogik Art Education in Middle School (2024)
First state examination for the teaching degree Mittelschule Art Education in Middle School (2024)

Module title			Abbreviation
Microscale Experiments in Chemistry Teaching			08-FD-MS-152-m01
Module coordinator		**Module offered by**	
holder of the Professorship of Didactics of Chemistry		Institute of Inorganic Chemistry	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
2	(not) successfully completed	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	unknown	--	

Contents

No information on contents available.

Intended learning outcomes

No information on learning outcomes available.

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

S (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

project: presentation of a project (approx. 30 minutes)
Language of assessment: German and/or English

Allocation of places

--

Additional information

--

Workload

60 h

Teaching cycle

--

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

§ 22 II Nr. 1 h)
§ 22 II Nr. 2 f)
§ 22 II Nr. 3 f)

Module appears in

First state examination for the teaching degree Grundschule Chemistry (2015)
First state examination for the teaching degree Grundschule Didactics in Chemistry (Primary School) (2015)
First state examination for the teaching degree Realschule Chemistry (2015)
First state examination for the teaching degree Gymnasium Chemistry (2015)
First state examination for the teaching degree Sonderpädagogik Didactics in Chemistry (Middle School) (2015)
First state examination for the teaching degree Mittelschule Chemistry (2015)
First state examination for the teaching degree Mittelschule Didactics in Chemistry (Middle School) (2015)
First state examination for the teaching degree Mittelschule Chemistry (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Mittelschule Didactics in Chemistry (Middle School) (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Sonderpädagogik Didactics in Chemistry (Middle School) (2020 (Prüfungsordnungsversion 2015))

Module title			Abbreviation
Out-Of-School Education			08-FD-ASL-152-m01
Module coordinator		**Module offered by**	
holder of the Professorship of Didactics of Chemistry		Institute of Inorganic Chemistry	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
2	(not) successfully completed	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	unknown	--	

Contents

No information on contents available.

Intended learning outcomes

No information on learning outcomes available.

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

S (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

project: presentation of a project (approx. 30 minutes)
Language of assessment: German and/or English

Allocation of places

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Additional information

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Workload

60 h

Teaching cycle

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

§ 22 II Nr. 1 h)
§ 22 II Nr. 2 f)
§ 22 II Nr. 3 f)

Module appears in

First state examination for the teaching degree Grundschule Chemistry (2015)
First state examination for the teaching degree Grundschule Didactics in Chemistry (Primary School) (2015)
First state examination for the teaching degree Realschule Chemistry (2015)
First state examination for the teaching degree Gymnasium Chemistry (2015)
First state examination for the teaching degree Sonderpädagogik Didactics in Chemistry (Middle School) (2015)
First state examination for the teaching degree Mittelschule Chemistry (2015)
First state examination for the teaching degree Mittelschule Didactics in Chemistry (Middle School) (2015)
First state examination for the teaching degree Mittelschule Chemistry (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Mittelschule Didactics in Chemistry (Middle School) (2020 (Prüfungsordnungsversion 2015))
First state examination for the teaching degree Sonderpädagogik Didactics in Chemistry (Middle School) (2020 (Prüfungsordnungsversion 2015))

Paper

(10 ECTS credits)

Preparation of a written Hausarbeit (thesis) in accordance with the provisions of Section 29 LPO I (examination regulations for teaching-degree programmes) is a prerequisite for teaching degree students to be admitted to the Erste Staatsprüfung (First State Examination). In accordance with the provisions of Section 29 LPO I, students studying for a teaching degree Grundschule may write this thesis in the subject Didaktik der Grundschule (Didactics of Grundschule), 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.

Module title			Abbreviation
Final Thesis according to § 29 LPO I in Chemistry for Elementary School Teachers			08-Ch-HA-UF-GS-152-m01
Module coordinator		**Module offered by**	
head of the research group offering the module		Faculty of Chemistry and Pharmacy	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
10	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

Adhering to the principles of good scientific practice, students will independently research and write on a topic in chemistry or chemistry didactics they have agreed upon with an authorised examiner in accordance with the provisions of Section 29 LPO (examination regulations for teaching degree programmes).

Intended learning outcomes

To pass this module, students will be expected to: - be able to independently write an academic paper (define and analyse a problem, conduct a literature search, refer to relevant theories, interpret data, draw logical conclusions, and offer approaches to the solution of said problem). - be able to work to deadlines. - be able to prepare an appropriate written account of the results of their work.

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

No courses assigned to module

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

Hausarbeit (thesis) pursuant to Section 29 LPO I (examination regulations for teaching-degree programmes) (30 to 50 pages)
Language of assessment: German; exceptions pursuant to Section 29 Subsection 4 LPO I (examination regulations for teaching-degree programmes)

Allocation of places

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Additional information

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Workload

300 h

Teaching cycle

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

§ 29

Module appears in

First state examination for the teaching degree Grundschule Chemistry (2015)