

# Module Catalogue for the Subject

# Didactics in Chemistry (Middle School)

as Didaktikfach with the degree "Erste Staatsprüfung für das Lehramt für Sonderpädagogik"

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



## **Contents**

| The subject is divided into  | 3  |
|--|----|
| Abbreviations used, Conventions, Notes, In accordance with                                       | 4  |
| Compulsory Courses   | 5  |
| Introduction into Teaching Chemistry for Elementary, Secondary and Middle School (Major Subject) | 6  |
| Teaching Chemical Practice for Elementary and Secondary School                                   | 7  |
| Designing Chemistry Classes for Elementary and Secondary School                                  | 8  |
| Social Aspects of Chemistry Teaching in Secondary School   | 9  |
| Freier Bereich (general as well as subject-specific electives)                                   | 10 |
| Extra Skills Teaching Chemistry at the German Mittelschule                                       | 11 |
| Principles of Inorganic Chemistry  | 12 |
| Organic Chemistry 1 (teaching degree for secondary schools)                                      | 14 |
| Organic Chemistry 2  | 16 |
| Physical Chemistry (teaching degree for secondary schools)                                       | 18 |
| Toxicology and legal studies   | 20 |
| Chemistry SchoolLabs   | 22 |
| Collecting Data with CASSY System  | 30 |
| Microscale Experiments in Chemistry Teaching   | 36 |
| Out-Of-School Education  | 37 |
| Paper  | 38 |



## The subject is divided into

| section / sub-section  | ECTS credits | starting<br>page |
|--|--------------|------------------|
| Compulsory Courses   | 20           | 5                |
| Freier Bereich (general as well as subject-specific electives) |              | 10               |
| Extra Skills Teaching Chemistry at the German Mittelschule     |              | 11               |
| Paper  | 10           | 38               |



#### **Abbreviations used**

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

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:

#### LASP02015

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

#### 08-Sep-2015 (2015-129)

This module handbook seeks to render, as accurately as possible, the data that is of statutory relevance according to the examination regulations of the degree subject. However, only the FSB (subject-specific provisions) and SFB (list of modules) in their officially published versions shall be legally binding. In the case of doubt, the provisions on, in particular, module assessments specified in the FSB/SFB shall prevail.



## **Compulsory Courses**

(20 ECTS credits)

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



|   |  | <u> </u>                              |                               |                             |   |  |  |
|---|--|---------------------------------------|-------------------------------|-----------------------------|---|--|--|
| Modul   | Module title Abbreviation  |                                       |                               |                             |   |  |  |
| Introd  | Introduction into Teaching Chemistry for Elementary, Secondary and Middle 08-FD1-DF-LAGM-152-m01 |                                       |                               |                             |   |  |  |
| School  | School (Major Subject)   |                                       |                               |                             |   |  |  |
| Modul   | e coord  | inator                                |                               | Module offered by           |   |  |  |
| holder  | of the I   | Professorship of Didaction            | s of Chemistry                | Institute of Inorgan        | ic Chemistry                              |  |  |
| ECTS  | Metho  | od of grading                         | Only after succ. con          | npl. of module(s)           |   |  |  |
| 5   | nume   | rical grade                           |                               |                             |   |  |  |
| Duratio   | on   | Module level                          | Other prerequisites           |                             |   |  |  |
| 1 seme  | ester  | unknown                               |                               |                             |   |  |  |
| Conter  | nts  |                                       |                               |                             |   |  |  |
| No info   | ormatio  | n on contents available.              |                               |                             |   |  |  |
| Intend  | ed lear  | ning outcomes                         |                               |                             |   |  |  |
| No info   | ormatio  | n on learning outcomes                | available.                    |                             |   |  |  |
| Course  | <b>es</b> (type, r   | number of weekly contact hours,       | language — if other than Ger  | man)                        |   |  |  |
| V (2) +   | S (2)  |                                       |                               |                             |   |  |  |
| Metho   | d of ass   | sessment (type, scope, langu          | age — if other than German, o | examination offered — if no | ot every semester, information on whether |  |  |
|   | _  | le for bonus)                         |                               |                             |   |  |  |
|   |  | mination (approx. 90 mi<br>of pupils) | nutes) and b) present         | ation (approx. 20 mi        | nutes) with practical examination         |  |  |
|   |  | ssessment: German and                 | l/or English                  |                             |   |  |  |
| Allocat   | tion of p  | olaces                                |                               |                             |   |  |  |
|   |  |                                       |                               |                             |   |  |  |
| Additio   | onal inf   | ormation                              |                               |                             |   |  |  |
|   |  |                                       |                               |                             |   |  |  |
| Workload  |  |                                       |                               |                             |   |  |  |
| 150 h   |  |                                       |                               |                             |   |  |  |
| Teaching cycle  |  |                                       |                               |                             |   |  |  |
|   |  |                                       |                               |                             |   |  |  |
| Referred to in LPO I (examination regulations for teaching-degree programmes) |  |                                       |                               |                             |   |  |  |
| § 36 I I  | Nr. 7  |                                       |                               |                             |   |  |  |
| 83811   | § 38   Nr. 1   |                                       |                               |                             |   |  |  |

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



| Modul                | e title  |   |                                  | ,                    | Abbreviation                                       |
|----------------------|----------|---|----------------------------------|----------------------|--|
|                      |          | mical Practice for E                        | 08-FD2-LAGM-152-m01              |                      |  |
| Modul                | e coord  | linator                                     |                                  | Module offe          | red by   |
|                      |          | Professorship of Dic                        | lactics of Chamistry             |                      | norganic Chemistry                                 |
| ECTS                 |          | od of grading                               | Only after succ.                 |                      | <u> </u>   |
|                      |          | rical grade                                 | Only after succ. (               | ompt. or module      | 5(3)   |
| 5<br>Durati          | •        | Module level                                | Other prerequisi                 | tes                  |  |
| 2 seme               |          | unknown                                     | Other prerequisit                | 163                  |  |
| Conter               |          | unknown                                     |                                  |                      |  |
|                      |          | n on contents availa                        | ahle.                            |                      |  |
|                      |          | ning outcomes                               |                                  |                      |  |
|                      |          | n on learning outco                         | mes available                    |                      |  |
|                      | _        |   | hours, language — if other than  | German)              |  |
| S (2) +              |          | y comy comuce                               | nouns, tanguage in other than    | - Community          |  |
|                      |          | sessment (type scope                        | language — if other than Germ    | an examination offer | ed — if not every semester, information on whether |
|                      |          | ole for bonus)                              | tanguage in ether than eeim      | a., e.a              |  |
|                      |          | on with practical exa<br>essessment: Germar |                                  | inutes) and b) p     | resentation (approx. 20 minutes)                   |
| Alloca               | tion of  | places                                      |                                  |                      |  |
|                      |          |   |                                  |                      |  |
| Additio              | onal inf | ormation                                    |                                  |                      |  |
|                      | ,        |   |                                  |                      |  |
| Worklo               | oad      |   |                                  |                      |  |
| 150 h                |          |   |                                  |                      |  |
| Teachi               | ng cycl  | e   |                                  |                      |  |
|                      |          |   |                                  |                      |  |
| Referre              | ed to in | LPO I (examination reg                      | ulations for teaching-degree pro | ogrammes)            |  |
| § 38   1<br>§ 42   1 |          | d § 36 l Nr. 7                              |                                  |                      |  |
|                      |          | _   |                                  |                      |  |

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))



| Module title Abbreviation   |  |   |                             |                            | Abbreviation                              |
|---|--|---|-----------------------------|----------------------------|---|
| Design  | Designing Chemistry Classes for Elementary and Secondary School 08-FD3-DF-LAGM-152-mo1 |   |                             |                            |   |
| Module  | e coord  | inator  |                             | Module offered by          |   |
| holder  | of the F   | Professorship of Didactic                             | s of Chemistry              | Institute of Inorgar       | nic Chemistry                             |
| ECTS  | Metho  | od of grading   | Only after succ. con        | npl. of module(s)          |   |
| 5   | nume   | rical grade   |                             |                            |   |
| Duratio   | on   | Module level  | Other prerequisites         |                            |   |
| 2 seme  | ester  | unknown   |                             |                            |   |
| Conten  | its  |   |                             |                            |   |
| No info   | rmatio   | n on contents available.                              |                             |                            |   |
| Intend  | ed learı   | ning outcomes   |                             |                            |   |
| No info   | rmatio   | n on learning outcomes a                              | vailable.                   |                            |   |
| Course  | <b>S</b> (type, r  | number of weekly contact hours,                       | anguage — if other than Ger | rman)                      |   |
| S (2) +   | S (2)  |   |                             |                            |   |
|   |  | <b>sessment</b> (type, scope, langua<br>le for bonus) | ge — if other than German,  | examination offered — if n | ot every semester, information on whether |
|   |  | mination (approx. 45 min<br>ssessment: German and     |                             | ation (approx. 20 m        | inutes)                                   |
| Allocat   | ion of p   | olaces  |                             |                            |   |
|   |  |   |                             |                            |   |
| Additio   | nal inf  | ormation  |                             |                            |   |
|   |  |   |                             |                            |   |
| Worklo  | ad   |   |                             |                            |   |
| 150 h   |  |   |                             |                            |   |
| Teaching cycle  |  |   |                             |                            |   |
|   |  |   |                             |                            |   |
| Referred to in LPO I (examination regulations for teaching-degree programmes) |  |   |                             |                            |   |
| § 36   Nr. 7  |  |   |                             |                            |   |
| § 38 I N  | Vr. 1  |   |                             |                            |   |
| Module appears in   |  |   |                             |                            |   |

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



| Modul   | e title           |   | Abbreviation                |                             |   |
|---|-------------------|---|-----------------------------|-----------------------------|---|
| Social  | Aspect            | s of Chemistry Teaching                             | o8-FD4-DF-LAMS-152-mo1      |                             |   |
| Modul   | e coord           | inator  |                             | Module offered by           |   |
| holder  | of the            | Professorship of Didactic                           | s of Chemistry              | Institute of Inorgan        | ic Chemistry                              |
| ECTS  | Meth              | od of grading                                       | Only after succ. con        | npl. of module(s)           |   |
| 5   | (not)             | successfully completed                              |                             |                             |   |
| Duratio   | on                | Module level  | Other prerequisites         |                             |   |
| 1 seme  | ster              | unknown   |                             |                             |   |
| Conter  | ıts               |   |                             |                             |   |
| No info   | rmatio            | n on contents available.                            |                             |                             |   |
| Intend  | ed lear           | ning outcomes                                       |                             |                             |   |
| No info   | rmatio            | n on learning outcomes a                            | available.                  |                             |   |
| Course  | S (type, i        | number of weekly contact hours,                     | language — if other than Ge | rman)                       |   |
| S (4)   | -                 |   |                             |                             |   |
|   |                   | sessment (type, scope, langua<br>ole for bonus)     | age — if other than German, | examination offered — if no | ot every semester, information on whether |
|   |                   | of a project (approx. 30 n<br>ssessment: German and |                             |                             |   |
| Allocat   | tion of           | places  |                             |                             |   |
|   |                   |   | _                           |                             |   |
| Additio   | onal inf          | ormation  |                             |                             |   |
|   |                   |   |                             |                             |   |
| Worklo  | Workload          |   |                             |                             |   |
| 150 h   |                   |   |                             |                             |   |
| Teaching cycle  |                   |   |                             |                             |   |
|   |                   |   |                             |                             |   |
| Referred to in LPO I (examination regulations for teaching-degree programmes) |                   |   |                             |                             |   |
|   | § 38   Nr. 1      |   |                             |                             |   |
| _   | Module appears in |   |                             |                             |   |

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



## Extra Skills Teaching Chemistry at the German Mittelschule

(ECTS credits)

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



| Module title   |      |                     |                      | Abbreviation                     |                |
|--|------|---------------------|----------------------|----------------------------------|----------------|
| Principles of Inorganic Chemistry                                    |      |                     |                      |                                  | 08-AC1-152-m01 |
| Module coordinator   |      |                     |                      | Module offered by                |                |
| lecturer of lecture "Experimentalchemie" (Experimental<br>Chemistry) |      |                     | e" (Experimental     | Institute of Inorganic Chemistry |                |
| ECTS Method of grading Only after succ. co                           |      |                     | Only after succ. con | npl. of module(s)                |                |
| 8  | nume | rical grade         |                      |                                  |                |
| Duration Module level Other  |      | Other prerequisites |                      |                                  |                |
| 1 seme   | ster | 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

--

#### **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**

--

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

§ 42 | Nr. 1 and § 22 | Nr. 1 h)

§ 62 | 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         |                                |  |
|---|------|-----------------|---------------------|----------------------|--------------------------------|--|
| Organic Chemistry 1 (teaching degree for secondary schools) |      |                 |                     | 08-OC1-LAGMR-152-m01 |                                |  |
| Module coordinator  |      |                 |                     | Module offere        | Module offered by              |  |
| holder of the Professorship of Organic Chemistry            |      |                 | anic Chemistry      | Institute of Or      | Institute of Organic Chemistry |  |
| ECTS  | Meth | od of grading   | Only after succ.    | compl. of module(    | (s)                            |  |
| 6   | nume | rical grade     |                     |                      |                                |  |
| Duration Module level                                       |      | Other prerequis | 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)

 $V(3) + \ddot{U}(1)$ 

 $\textbf{Method of assessment} \ (\textbf{type}, \textbf{scope}, \textbf{language} - \textbf{if other than German, examination offered} - \textbf{if not every semester, information on whether} \ (\textbf{type}, \textbf{scope}, \textbf{language} - \textbf{if other than German, examination offered} - \textbf{if not every semester, information on whether} \ (\textbf{type}, \textbf{scope}, \textbf{language}) \ (\textbf{type}, \textbf{language}) \$ 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

#### **Additional information**

#### Workload

180 h

#### **Teaching cycle**

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

§ 42 | Nr. 2 and § 22 | 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))



| Module title                  |   |                     | Abbreviation         |                                |                   |
|-------------------------------|---|---------------------|----------------------|--------------------------------|-------------------|
| Organic Chemistry 2           |   |                     |                      |                                | 08-0C2-VL-152-m01 |
| Module coordinator            |   |                     |                      | Module offered by              |                   |
| holder                        | holder of the Chair of Physically Organic Chemistry |                     |                      | Institute of Organic Chemistry |                   |
| ECTS                          | Meth  | od of grading       | Only after succ. con | npl. of module(s)              |                   |
| 6                             | nume  | rical grade         |                      |                                |                   |
| Duration Module level Other p |   | Other prerequisites |                      |                                |                   |
| 1 seme                        | ester   | 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)

 $V(3) + \ddot{U}(1)$ 

**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

--

#### **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**

--

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

§ 42 | Nr. 2 and § 22 | 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                          |                     |  |
|---|----------|---------------------|----------------------|---------------------------------------|---------------------|--|
| Physical Chemistry (teaching degree for secondary schools   |          |                     |                      | 5)                                    | o8-PC-LAGMR-152-mo1 |  |
| Module coordinator  |          |                     |                      | Module offered by                     |                     |  |
| lecturer of lecture "Thermodynamik, Kinetik, Elektrochemie<br>für Studierende der Biologie, Lebensmittelchemie and des<br>Lehramtes Chemie GHR" |          |                     |                      | · · · · · · · · · · · · · · · · · · · |                     |  |
| ECTS  | Meth     | od of grading       | Only after succ. con | npl. of module(s)                     |                     |  |
| 6   | nume     | rical grade         |                      |                                       |                     |  |
| Duration Module level Other prerequi  |          | Other prerequisites | prerequisites        |                                       |                     |  |
| 1 semester undergraduate  |          |                     |                      |                                       |                     |  |
| Conten  | 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)

 $V(2) + \ddot{U}(1) + V(1) + \ddot{U}(1)$ 

**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

--

#### **Additional information**

--

#### Workload

180 h

#### Teaching cycle

--

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

§ 42 | Nr. 1 and § 22 | 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))





| e title                      |  | Abbreviation  |   |  |
|------------------------------|--|---|---|--|
| Toxicology and legal studies |  |   |   | 03-TR-152-m01  |
| Module coordinator           |  |   | Module offered by   |  |
| r of lect                    | ture "Toxikologie und Re               | echtskunde"   | Faculty of Medicine   |  |
| Metho                        | od of grading                          | Only after succ. cor  | npl. of module(s)   |  |
| nume                         | rical grade                            |   |   |  |
| Duration Module level        |  | Other prerequisites   |   |  |
| 1 semester undergraduate     |  |   |   |  |
|                              | e coord<br>r of lect<br>Methon<br>nume | coordinator r of lecture "Toxikologie und Re Method of grading numerical grade Module level | ogy and legal studies  c coordinator  r of lecture "Toxikologie und Rechtskunde"  Method of grading  numerical grade  n Module level  Other prerequisites | coordinator  r of lecture "Toxikologie und Rechtskunde"  Method of grading  numerical grade  Module level  Other prerequisites |

#### **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

--

#### **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**

--

#### **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                         | Module title Abbreviation        |  |                            |                             |   |
|--------------------------------|----------------------------------|--|----------------------------|-----------------------------|---|
| Chemistry SchoolLabs 08-FD-LLI |                                  |  |                            |                             | 08-FD-LLL-152-m01                         |
| Module                         | Module coordinator Module offere |  |                            | Module offered by           | ,   |
| holder                         | of the I                         | Professorship of Didactic                        | s of Chemistry             | Institute of Inorgan        | ic Chemistry                              |
| ECTS                           | Metho                            | od of grading                                    | Only after succ. con       | npl. of module(s)           |   |
| 2                              | (not)                            | successfully completed                           |                            |                             |   |
| Duratio                        | n                                | Module level                                     | Other prerequisites        |                             |   |
| 1 seme                         | ster                             | unknown  |                            |                             |   |
| Conten                         | ts                               |  |                            |                             |   |
| No info                        | rmatio                           | n on contents available.                         |                            |                             |   |
| Intend                         | ed lear                          | ning outcomes                                    |                            |                             |   |
| No info                        | rmatio                           | n on learning outcomes a                         | available.                 |                             |   |
| Course                         | <b>S</b> (type, r                | number of weekly contact hours,                  | anguage — if other than Ge | rman)                       |   |
| P (3)                          |                                  |  |                            |                             |   |
|                                |                                  | sessment (type, scope, langua<br>ble for bonus)  | ge — if other than German, | examination offered — if no | ot every semester, information on whether |
|                                |                                  | gnment (successful supe<br>ssessment: German and |                            | in learn-teach-lab, a       | pprox. 4 to 6 hours each)                 |
| Allocation of places           |                                  |  |                            |                             |   |
|                                |                                  |  |                            |                             |   |
| Additio                        | nal inf                          | ormation   |                            |                             |   |
|                                |                                  |  |                            |                             |   |
| Worklo                         | ad                               |  |                            |                             |   |

60 h

#### **Teaching cycle**

#### $\textbf{Referred to in LPO I} \ \ (\text{examination regulations for teaching-degree programmes})$

§ 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) 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)

First state examination for the teaching degree Sonderpädagogik Didactics in Mathematics (Middle School) (2015)

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)

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)

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 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 (Prüfungs-

ordnungsversion 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 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  | e title           |   |                                      | Abbreviation                     |  |  |
|---|-------------------|---|--------------------------------------|----------------------------------|--|--|
| Collecting Data with CASSY System                     |                   |   |                                      |                                  | 08-FD-CAS-152-m01                            |  |
| Module coordinator                                    |                   |   |                                      | Module offered b                 | Module offered by                            |  |
| holder of the Professorship of Didactics of Chemistry |                   |   |                                      | Institute of Inorganic Chemistry |  |  |
| ECTS  | Meth              | od of grading                                   | Only after succ. compl. of module(s) |                                  |  |  |
| 2   | (not)             | successfully completed                          |                                      |                                  |  |  |
| Duration Module level                                 |                   | Other prerequisites                             |                                      |                                  |  |  |
| 1 semester  |                   | unknown   |                                      |                                  |  |  |
| Conten  | ts                |   |                                      |                                  |  |  |
| No info   | rmatio            | n on contents available.                        | •                                    |                                  |  |  |
| Intend  | ed lear           | ning outcomes                                   |                                      |                                  |  |  |
| No info   | rmatio            | n on learning outcomes a                        | ıvailable.                           |                                  |  |  |
| Course  | <b>S</b> (type, i | number of weekly contact hours,                 | anguage — if other tha               | n German)                        |  |  |
| S (2)   |                   |   |                                      |                                  |  |  |
|   |                   | sessment (type, scope, langua<br>ble for bonus) | ge — if other than Gern              | nan, examination offered — il    | f not every semester, information on whether |  |
|   |                   | of a project (approx. 30 m                      |                                      |                                  |  |  |
| Allocat   | ion of            | places  |                                      |                                  |  |  |
|   |                   |   |                                      |                                  |  |  |
| Additio   | nal inf           | ormation  |                                      |                                  |  |  |
|   |                   |   |                                      |                                  |  |  |
| Worklo  | ad                |   |                                      |                                  |  |  |
| 60 h  |                   |   |                                      |                                  |  |  |
| Teaching cycle  |                   |   |                                      |                                  |  |  |
|   |                   |   |                                      |                                  |  |  |

#### § 22 II Nr. 2 f)

9 22 11 101 , 2 1)

§ 22 II Nr. 3 f)

§ 22 II Nr. 1 h)

#### Module appears in

First state examination for the teaching degree Hauptschule English (2009)

 $\textbf{Referred to in LPO I} \ \ (\text{examination regulations for teaching-degree programmes})$ 

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 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 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 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)

First state examination for the teaching degree Sonderpädagogik Didactics in Mathematics (Middle School)

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 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 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 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 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 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 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 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 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 Gymnasium English (2021)

First state examination for the teaching degree Gymnasium Philosophy and Ethics (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 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 Mittelschule Geography (2023)

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 Mittelschule German (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 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 Gymnasium Greek Philology (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   | e title           |                                 | Abbreviation                         |                                  |  |  |  |
|--|-------------------|---------------------------------|--------------------------------------|----------------------------------|--|--|--|
| Microscale Experiments in Chemistry Teaching 08-FD-MS-152-mo1  |                   |                                 |                                      |                                  |  |  |  |
| Module   | e coord           | inator                          |                                      | Module offered by                |  |  |  |
| holder   | of the I          | Professorship of Didactic       | s of Chemistry                       | Institute of Inorganic Chemistry |  |  |  |
| ECTS   | Meth              | od of grading                   | Only after succ. compl. of module(s) |                                  |  |  |  |
| 2  | (not)             | successfully completed          |                                      |                                  |  |  |  |
| Duration Module level  |                   | Other prerequisites             |                                      |                                  |  |  |  |
| 1 seme   | ster              | unknown                         |                                      |                                  |  |  |  |
| Conten   | its               |                                 |                                      |                                  |  |  |  |
| No information on contents available.  |                   |                                 |                                      |                                  |  |  |  |
| Intend   | ed lear           | ning outcomes                   |                                      |                                  |  |  |  |
| No information on learning outcomes available.   |                   |                                 |                                      |                                  |  |  |  |
| Course   | <b>S</b> (type, r | number of weekly contact hours, | language — if other than Ge          | rman)                            |  |  |  |
| S (2)  |                   |                                 |                                      |                                  |  |  |  |
| <b>Method of assessment</b> (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)<br>Language of assessment: German and/or English   |                   |                                 |                                      |                                  |  |  |  |
| Allocat  | ion of p          | places                          |                                      |                                  |  |  |  |
|  |                   |                                 |                                      |                                  |  |  |  |
| Additio  | nal inf           | ormation                        |                                      |                                  |  |  |  |
|  |                   |                                 |                                      |                                  |  |  |  |
| Worklo   | ad                |                                 |                                      |                                  |  |  |  |
| 60 h   |                   |                                 |                                      |                                  |  |  |  |
| Teaching cycle   |                   |                                 |                                      |                                  |  |  |  |
|  |                   |                                 |                                      |                                  |  |  |  |
| Referred to in LPO I (examination regulations for teaching-degree programmes)  |                   |                                 |                                      |                                  |  |  |  |
| § 22    Nr. 1 h)<br>§ 22    Nr. 2 f)<br>§ 22    Nr. 3 f)   |                   |                                 |                                      |                                  |  |  |  |

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))



| Modul  | e title              |                                   |                                      | Abbreviation                     |                   |  |  |
|--|----------------------|-----------------------------------|--------------------------------------|----------------------------------|-------------------|--|--|
| Out-Of   | -Schoo               | l Education                       |                                      |                                  | 08-FD-ASL-152-m01 |  |  |
| Modul  | e coord              | linator                           |                                      | Module offered by                |                   |  |  |
| holder   | of the               | Professorship of Didactic         | s of Chemistry                       | Institute of Inorganic Chemistry |                   |  |  |
| ECTS   | TS Method of grading |                                   | Only after succ. compl. of module(s) |                                  |                   |  |  |
| 2  | (not)                | successfully completed            |                                      |                                  |                   |  |  |
| Duration Module level  |                      | Module level                      | Other prerequisites                  |                                  |                   |  |  |
| 1 semester   |                      | unknown                           |                                      |                                  |                   |  |  |
| Contents   |                      |                                   |                                      |                                  |                   |  |  |
| No information on contents available.  |                      |                                   |                                      |                                  |                   |  |  |
| Intended learning outcomes   |                      |                                   |                                      |                                  |                   |  |  |
| No information on learning outcomes available.   |                      |                                   |                                      |                                  |                   |  |  |
| Course   | S (type, i           | number of weekly contact hours, l | anguage — if other than Ger          | man)                             |                   |  |  |
| S (2)  |                      |                                   |                                      |                                  |                   |  |  |
| <b>Method of assessment</b> (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))



### **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 Mittelschule may write this thesis in the subject Didaktik einer Fächergruppe der Mittelschule (Didactics of a Group of Subjects of Mittelschule), 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.