Module Catalogue
for the Module studies (Bachelor)
Chemistry

Examination regulations version: 2019
Responsible: Faculty of Chemistry and Pharmacy
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<tr>
<td>Winter Term 2021</td>
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</table>
**Abbreviations used**

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

Term: $SS = \text{summer semester}$, $WS = \text{winter semester}$

Methods of grading: $\text{NUM} = \text{numerical grade}$, $B/NB = \text{(not) successfully completed}$

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

Other: $A = \text{thesis}$, $LV = \text{course(s)}$, $PL = \text{assessment(s)}$, $TN = \text{participants}$, $VL = \text{prerequisite(s)}$

**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:

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

15-May-2019 (2019-36)

27-Jun-2019 (2019-41)

14-Nov-2019 (2019-52)

22-Jan-2020 (2020-13)

06-May-2019 (2020-39)

22-Jul-2020 (2020-57)

17-Dec-2020 (2020-110)

10-Mar-2021 (2021-17)
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.
Summer Term 2019

(0 ECTS credits)
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<tr>
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<th>Abbreviation</th>
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<td>Advanced chemical practical course</td>
<td>08-OP-152-m01</td>
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<td>Faculty of Chemistry and Pharmacy</td>
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**Contents**

This module gives students the opportunity to explore a research topic and apply the methods commonly used in the discipline in question.

**Intended learning outcomes**

The student is able to deeply acquaint himself/herself with a specific research topic, and to process and to present the results in a written report or a talk.

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

| P (10) |

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

<table>
<thead>
<tr>
<th>a) talk (approx. 15 minutes) or b) log (approx. 10 to 20 pages)</th>
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**Allocation of places**

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**Additional information**

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

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Winter Term 2019

(0 ECTS credits)
Module title | Abbreviation
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Advanced chemical practical course | 08-OP-152-m01

Module coordinator | Module offered by
head of the research group offering the module | Faculty of Chemistry and Pharmacy

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P (10)

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

This module will provide students with an overview of anorganic chemistry. Furthermore, in a lab course it introduces on the basics techniques of anorganic chemistry.

### Intended learning outcomes

Students have become familiar with the fundamental principles of inorganic chemistry. They are able to identify fundamental problems in chemistry and perform experiments to solve them.

### Courses

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### Method of assessment

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Language of assessment: German and/or English

### Allocation of places

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### Additional information

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### Referred to in LPO I

(examination regulations for teaching-degree programmes)

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Module title | Abbreviation
---|---
Inorganic Chemistry of the Elements | 08-AS1-152-m01

Module coordinator | Module offered by
lecturer of lecture "Chemie der Hauptgruppenelemente" (Chemistry of Main-group Elements) | Institute of Inorganic Chemistry

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

Duration | Module level | Other prerequisites
1 semester | undergraduate | --

Contents
This module equips students with an advanced knowledge of the periodic table and selected elements. It focuses on bonding conditions, trends in the periodic table and the description and structure of elements. In addition, it introduces students to elementary organic chemistry, coordination chemistry and complex chemistry.

Intended learning outcomes
Students are able to characterise main group elements and transition metal elements in terms of their structure, reactivity and fabrication. They are able to identify the coordination of the atoms. In addition, they have learned how to use the periodic table, an essential tool for chemists.

Courses (type, number of weekly contact hours, language — if other than German)
V (2) + V (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)
a) written examination (approx. 90 to 180 minutes) or b) oral examination of one candidate each (20 to 30 minutes) or c) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or d) log (approx. 20 pages) or e) presentation (approx. 30 minutes)
Language of assessment: German and/or English

Allocation of places
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Additional information
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Referred to in LPO I (examination regulations for teaching-degree programmes)
§ 62 I Nr. 1
Module title
Biochemistry 1

Abbreviation
08-BC1-152-m01

Module coordinator
holder of the Chair of Biochemistry

Module offered by
Chair of Biochemistry

ECTS
5

Method of grading
numerical grade

Only after succ. compl. of module(s)
--

Duration
1 semester

Module level
undergraduate

Other prerequisites
--

Contents
The module imparts the basic knowledge of biochemistry by lectures and tutorials. Main topics of the module Biochemistry 1 are particularly the biochemistry of proteins (amino acids, peptide bond, primary, secondary, tertiary and quaternary structure), catalytic strategies and enzyme kinetics, carbohydrate metabolism (glycolysis, gluconeogenesis, citric acid cycle, cellular respiration, photosynthesis), fatty acid metabolism (beta-oxidation, fatty acid synthesis), nucleotide metabolism, urea cycle and metabolism of amino acids. Additionally the module conveys basic knowledge about the structure of DNA and the basics of passing and transformation of genetic information (central dogma).

Intended learning outcomes
The student has basic knowledge in the covered subject areas of biochemistry. He/She is able to describe the basic biochemical processes in cellular systems.

Courses
V (2) + Ü (1)

Method of assessment
written examination (approx. 60 to 90 minutes)

Allocation of places
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Additional information
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Referred to in LPO I (examination regulations for teaching-degree programmes)
§ 42 l Nr. 2
§ 62 l Nr. 2
Module title: Organic Chemistry 1
Abbreviation: 08-OC1-152-m01

Module coordinator: holder of the Professorship of Organic Chemistry
Module offered by: Institute of Organic Chemistry

ECTS: 5
Method of grading: numerical grade
Duration: 1 semester
Module level: undergraduate
Other prerequisites: --

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
V (3) + Ü (1)

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

Language of assessment: German and/or English

Allocation of places
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Additional information
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**Contents**

This module will provide students with an overview of organic chemistry.

**Intended learning outcomes**

Students have become familiar with the fundamental principles of organic chemistry.

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

| V (2) |

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

written examination (approx. 60 minutes)

Language of assessment: German and/or English

**Allocation of places**

--

**Additional information**

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

--
Advanced chemical practical course

Module title: Advanced chemical practical course
Abbreviation: 08-OP-152-m01

Module coordinator: head of the research group offering the module
Module offered by: Faculty of Chemistry and Pharmacy

ECTS: 5
Method of grading: Only after succ. compl. of module(s)

Duration: Module level: undergraduate
Other prerequisites: --

Contents:
This module gives students the opportunity to explore a research topic and apply the methods commonly used in the discipline in question.

Intended learning outcomes:
The student is able to deeply acquaint himself/herself with a specific research topic, and to process and to present the results in a written report or a talk.

Courses:
P (10)

Method of assessment:
a) talk (approx. 15 minutes) or b) log (approx. 10 to 20 pages)
Language of assessment: German and/or English

Allocation of places:
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Additional information:
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Referred to in LPO I (examination regulations for teaching-degree programmes):
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Winter Term 2020
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<td>Introduction to Inorganic Chemistry for Students of Biology, Medicine and Dentistry</td>
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**Module coordinator**

lecturer of lecture "Allgemeine und Anorganische Chemie für Studenten der Medizin, Zahnmedizin und Biologie" (General and Inorganic Chemistry for Students of Medicine, Dentistry and Biology)

**Module offered by**

Institute of Inorganic Chemistry

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**Duration**

1 semester

**Module level**

undergraduate

**Other prerequisites**

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**Contents**

This module will provide students with an overview of anorganic chemistry. Furthermore, in a lab course it introduces on the basics techniques of anorganic chemistry.

**Intended learning outcomes**

Students have become familiar with the fundamental principles of inorganic chemistry. They are able to identify fundamental problems in chemistry and perform experiments to solve them.

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

V (2)

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

written examination (approx. 60 minutes)

Language of assessment: German and/or English

**Allocation of places**

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**Additional information**

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**Module coordinator**

lecturer of lecture "Experimentalchemie" (Experimental Chemistry)

**Module offered by**

Institute of Inorganic Chemistry

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**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)

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Language of assessment: German and/or English

**Allocation of places**

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**Additional information**

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This module will provide students with an overview of organic chemistry.

### Intended learning outcomes

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### Method of assessment

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**Module coordinator**

lecturer of lecture "Allgemeine und Anorganische Chemie für Studierende der Medizin, Zahnmedizin und Biologie" (General and Inorganic Chemistry for Students of Medicine, Dentistry and Biology)

**Module offered by**

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**Duration**

1 semester

**Module level**

undergraduate

**Other prerequisites**

--

**Contents**

This module will provide students with an overview of inorganic chemistry. Furthermore, in a lab course it introduces on the basics techniques of inorganic chemistry.

**Intended learning outcomes**

Students have become familiar with the fundamental principles of inorganic chemistry. They are able to identify fundamental problems in chemistry and perform experiments to solve them.

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

V (2)

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

written examination (approx. 60 minutes)

Language of assessment: German and/or English

**Allocation of places**

--

**Additional information**

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

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<table>
<thead>
<tr>
<th>Module title</th>
<th>Abbreviation</th>
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<tbody>
<tr>
<td>Inorganic Chemistry of the Elements</td>
<td>08-AS1-152-m01</td>
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**Module coordinator**

lecturer of lecture "Chemie der Hauptgruppenelemente" (Chemistry of Main-group Elements)

**Module offered by**

Institute of Inorganic Chemistry

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<tbody>
<tr>
<td>1 semester</td>
<td>undergraduate</td>
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</table>

**Contents**

This module equips students with an advanced knowledge of the periodic table and selected elements. It focuses on bonding conditions, trends in the periodic table and the description and structure of elements. In addition, it introduces students to elementary organic chemistry, coordination chemistry and complex chemistry.

**Intended learning outcomes**

Students are able to characterise main group elements and transition metal elements in terms of their structure, reactivity and fabrication. They are able to identify the coordination of the atoms. In addition, they have learned how to use the periodic table, an essential tool for chemists.

**Courses**

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

V (2) + V (2)

**Method of assessment**

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

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

Language of assessment: German and/or English

**Allocation of places**

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**Additional information**

--

**Referred to in LPO I**

(examination regulations for teaching-degree programmes)

§ 62 I Nr. 1
Module title | Abbreviation
--- | ---
Biochemistry 1 | 08-BC1-152-m01

Module coordinator | Module offered by
holder of the Chair of Biochemistry | Chair of Biochemistry

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Contents

The module imparts the basic knowledge of biochemistry by lectures and tutorials. Main topics of the module Biochemistry 1 are particularly the biochemistry of proteins (amino acids, peptide bond, primary, secondary, tertiary and quaternary structure), catalytic strategies and enzyme kinetics, carbohydrate metabolism (glycolysis, gluconeogenesis, citric acid cycle, cellular respiration, photosynthesis), fatty acid metabolism (beta-oxidation, fatty acid synthesis), nucleotide metabolism, urea cycle and metabolism of amino acids. Additionally the module conveys basic knowledge about the structure of DNA and the basics of passing and transformation of genetic information (central dogma).

Intended learning outcomes

The student has basic knowledge in the covered subject areas of biochemistry. He/She is able to describe the basic biochemical processes in cellular systems.

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

V (2) + Ü (1)

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

written examination (approx. 60 to 90 minutes)

Allocation of places

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Additional information

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

§ 42 I Nr. 2
§ 62 I Nr. 2
Module title
Organic Chemistry for students of medicine, biomedicine, dental medicine and natural sciences

Abbreviation
08-OC-NF-152-m01

Module coordinator
Lecturer of lecture "Organische Chemie für Studierende der Medizin, Biomedizin, Zahnmedizin, Ingenieur- and Naturwissenschaften"

Module offered by
Institute of Organic Chemistry

ECTS
3

Method of grading
Only after succ. compl. of module(s)

Method of grading
numerical grade

Duration
1 semester

Module level
undergraduate

Other prerequisites
--

Contents
This module will provide students with an overview of organic chemistry.

Intended learning outcomes
Students have become familiar with the fundamental principles of organic chemistry.

Courses
(type, number of weekly contact hours, language — if other than German)
V (2)

Method of assessment
(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)
written examination (approx. 60 minutes)
Language of assessment: German and/or English

Allocation of places
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Additional information
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Referred to in LPO I
(examination regulations for teaching-degree programmes)
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## Advanced chemical practical course

### Module information

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<th>Module title</th>
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<td>08-OP-152-m01</td>
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<th>Module offered by</th>
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<tbody>
<tr>
<td>head of the research group offering the module</td>
<td>Faculty of Chemistry and Pharmacy</td>
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### Contents

This module gives students the opportunity to explore a research topic and apply the methods commonly used in the discipline in question.

### Intended learning outcomes

The student is able to deeply acquaint himself/herself with a specific research topic, and to process and to present the results in a written report or a talk.

### Courses

<table>
<thead>
<tr>
<th>(type, number of weekly contact hours, language — if other than German)</th>
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<td>P (10)</td>
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### 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) talk (approx. 15 minutes) or b) log (approx. 10 to 20 pages)
- Language of assessment: German and/or English

### Allocation of places

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### Additional information

--

### Referred to in LPO I

(examination regulations for teaching-degree programmes)

--
Winter Term 2021
(0 ECTS credits)
Module title | Abbreviation
---|---
**Introduction to Inorganic Chemistry for Students of Biology, Medicine and Dentistry** | 08-AC-NF-152-m01

**Module coordinator**

lecturer of lecture "Allgemeine und Anorganische Chemie für Studierende der Medizin, Zahnmedizin and Biologie" (General and Inorganic Chemistry for Students of Medicine, Dentistry and Biology)

**Module offered by**

Institute of Inorganic Chemistry

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**Duration**

1 semester

**Module level**

undergraduate

**Contents**

This module will provide students with an overview of anorganic chemistry. Furthermore, in a lab course it introduces on the basics techniques of anorganic chemistry.

**Intended learning outcomes**

Students have become familiar with the fundamental principles of inorganic chemistry. They are able to identify fundamental problems in chemistry and perform experiments to solve them.

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

V (2)

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

written examination (approx. 60 minutes)

Language of assessment: German and/or English

**Allocation of places**

--

**Additional information**

--

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

--
Module title | Abbreviation
--- | ---
Principles of Inorganic Chemistry | 08-AC1-152-m01

Module coordinator
lecturer of lecture "Experimentalchemie" (Experimental Chemistry)

Module offered by
Institute of Inorganic Chemistry

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

Duration | Module level | Other prerequisites
--- | --- | ---
1 semester | undergraduate | --

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

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

Courses
(type, number of weekly contact hours, language — if other than German)
V (4) + V (2)

Method of assessment
(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)
a) written examination (approx. 90 to 180 minutes) or b) oral examination of one candidate each (20 to 30 minutes) or c) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or d) log (approx. 20 pages) or e) presentation (approx. 30 minutes)
Language of assessment: German and/or English

Allocation of places
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Additional information
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Referred to in LPO I
(examination regulations for teaching-degree programmes)
§ 42 I Nr. 1 and § 22 II Nr. 1 h)
§ 62 I Nr. 1
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<tr>
<td>lecturer of lecture &quot;Organische Chemie für Studierende der Medizin, Biomedizin, Zahnmedizin, Ingenieur- und Naturwissenschaften&quot;</td>
<td>Institute of Organic Chemistry</td>
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**Contents**

This module will provide students with an overview of organic chemistry.

**Intended learning outcomes**

Students have become familiar with the fundamental principles of organic chemistry.

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

V (2)

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

written examination (approx. 60 minutes)
Language of assessment: German and/or English

**Allocation of places**

--

**Additional information**

--

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

--
## Module title
Advanced chemical practical course

### Abbreviation
08-OP-152-m01

### Module coordinator
head of the research group offering the module

### Module offered by
Faculty of Chemistry and Pharmacy

### ECTS
5

### Method of grading
Only after succ. compl. of module(s)

### Duration
Module level
undergraduate

### Other prerequisites
--

### Contents
This module gives students the opportunity to explore a research topic and apply the methods commonly used in the discipline in question.

### Intended learning outcomes
The student is able to deeply acquaint himself/herself with a specific research topic, and to process and to present the results in a written report or a talk.

### Courses
(type, number of weekly contact hours, language — if other than German)
P (10)

### 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) talk (approx. 15 minutes) or b) log (approx. 10 to 20 pages)
Language of assessment: German and/or English

### Allocation of places
--

### Additional information
--

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