Julius-Maximilians-
UNIVERSITÄT
WÜRZBURG

# Annex SFB

# Studienfachbeschreibung (subject description, SFB) for the subject Chemistry as a Bachelor's with 1 major

## with the degree "Bachelor of Science" (180 ECTS credits)

Responsible: Faculty of Chemistry and Pharmacy

Examination regulations version: 2017

Abbreviations used:

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

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

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

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

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

Conventions for the modules in this SFB:

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

Information on assessment procedures:

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 a 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:

**ASPO2015**

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

**09-Aug-2017 (2017-48)**

**??-???-2024 (2024-??)**

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.

Every module will be described using the following form:

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Abbreviation | **Module title** | | | | | | | |
| | ECTS | | Duration | (in semesters) | Method of grading | | Module level | |
| | Courses | To be specified in the form X (y) with course type X abbreviated as specified above and number of weekly contact hours y | | | | | | |
| | Method of assessment | | | | | | | |
| | Only after successful completion of | if applicable | | | | | | |
| | Other prerequisites | if applicable | | | | | | |
| | Participants and allocation of places | if applicable | | | | | | |
| | Additional information | if applicable | | | | | | |
| | Referred to in LPO I | if applicable (examination regulations for teaching-degree programmes) | | | | | | |

| Compulsory Courses (150 ECTS credits) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Subfield General and Inorganic Chemistry (47 ECTS credits)** | | | | | | | | |
| 08-AC1-152-m01 | **Principles of Inorganic Chemistry** | | | | | | | |
| | ECTS | 8 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (4) + V (2) | | | | | |
| | Method of assessment | | a) written examination (approx. 90 to 180 minutes) or<br>b) oral examination of one candidate each (20 to 30 minutes) or<br>c) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or<br>d) log (approx. 20 pages) or<br>e) presentation (approx. 30 minutes)<br>Language of assessment: German and/or English | | | | | |
| | 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 | | | | | |
| | Referred to in LPO I | | § 42 I Nr. 1 and § 22 II Nr. 1 h)<br>§ 62 I Nr. 1 | | | | | |
| 08-ACP1-152-m01 | **Inorganic Chemistry 1 (lab)** | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | (not) successfully completed | Modul level | undergraduate |
| | Courses | | P (12) + S (2) | | | | | |
| | 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)] and Vortestate/Nachtestate (pre and post-experiment examination talks approx. 15 minutes each, log approx. 5 to 10 pages each) and assessment of practical assignments (2 to 4 random examinations)<br>Language of assessment: German and/or English<br>Assessment offered: Once a year, winter semester | | | | | |
| | Additional Information | | according to § 2 para. 2 sentence 2 APOLmCh in conjunction with No. I 1st letter a) of annex 1 to the APOLmCh and No. 1 of annex 2 to the APOLmCh | | | | | |
| 08-AS1-152-m01 | **Inorganic Chemistry of the Elements** | | | | | | | |
| | ECTS | 6 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (2) + V (2) | | | | | |
| | Method of assessment | | a) written examination (approx. 90 to 180 minutes) or<br>b) oral examination of one candidate each (20 to 30 minutes) or<br>c) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or<br>d) log (approx. 20 pages) or<br>e) presentation (approx. 30 minutes)<br>Language of assessment: German and/or English | | | | | |
| | 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 | | | | | |
| | Referred to in LPO I | | § 62 I Nr. 1 | | | | | |

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|---|---|---|---|---|---|---|---|---|
| 08-ANP-152-m01 | **Analytical Chemistry (lab)** | | | | | | | |
| | ECTS | 6 | Duration | 1 semester | Method of grading | (not) successfully completed | Modul level | undergraduate |
| | Courses | | P (12) + S (1) | | | | | |
| | Method of assessment | | Vortestate/Nachtestate (pre and post-experiment examination talks approx. 15 minutes each, log approx. 5 to 10 pages each) and assessment of practical performance (2 to 4 random examinations)<br>Language of assessment: German and/or English<br>Assessment offered: Once a year, summer semester | | | | | |
| | Additional Information | | according to § 2 para. 2 sentence 2 APOLmCh in conjunction with No. I 1st letter a) of annex 1 to the APOLmCh and No. 1 of annex 2 to the APOLmCh | | | | | |
| 08-ACP2-172-m01 | **Inorganic Chemistry 2 (lab)** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | (not) successfully completed | Modul level | undergraduate |
| | Courses | | P (12) | | | | | |
| | Method of assessment | | Vortestate/Nachtestate (pre and post-experiment examination talks approx. 15 minutes each, log approx. 5 to 10 pages each) and assessment of practical performance (2 to 4 random examinations)<br>Language of assessment: German and/or English | | | | | |
| | Modules successfully completed | | (08-OCP1 or 08-OCP1-BC) and 08-AS1 | | | | | |
| 08-AC-FSE-152-m01 | **Solid State Chemistry, Spectroscopic Methods, Organoelement Chemistry** | | | | | | | |
| | ECTS | 12 | Duration | 2 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (2) + V (2) + V (3) + Ü (1) | | | | | |
| | Method of assessment | | a) written examination (approx. 90 to 180 minutes) or<br>b) oral examination of one candidate each (20 to 30 minutes) or<br>c) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or<br>d) log (approx. 20 pages) or<br>e) presentation (approx. 30 minutes)<br>Language of assessment: German and/or English | | | | | |
| **Subfield Organic Chemistry (40 ECTS credits)** | | | | | | | | |
| 08-OC1-152-m01 | **Organic Chemistry 1** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (3) + Ü (1) | | | | | |
| | Method of assessment | | a) written examination (approx. 90 to 180 minutes) or<br>b) oral examination of one candidate each (20 to 30 minutes) or<br>c) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or<br>d) log (approx. 20 pages) or<br>e) presentation (approx. 30 minutes)<br>Language of assessment: German and/or English | | | | | |
| | 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 | | | | | |
| | Referred to in LPO I | | § 62 I Nr. 2 | | | | | |

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|---|---|---|---|---|---|---|---|---|
| 08-OC2-152-m01 | **Organic Chemistry 2 and analytical methods in organic chemistry** | | | | | | | |
| | ECTS | 9 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (3) + Ü (1) + V (2) | | | | | |
| | Method of assessment | | a) written examination (approx. 90 to 180 minutes) or<br>b) oral examination of one candidate each (20 to 30 minutes) or<br>c) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or<br>d) log (approx. 20 pages) or<br>e) presentation (approx. 30 minutes)<br>Language of assessment: German and/or English | | | | | |
| 08-OCP1-172-m01 | **Organic Chemistry - lab 1** | | | | | | | |
| | ECTS | 8 | Duration | 1 semester | Method of grading | (not) successfully completed | Modul level | undergraduate |
| | Courses | | P (14) | | | | | |
| | Method of assessment | | Vortestate/Nachtestate (pre and post-experiment examination talks approx. 15 minutes each, log approx. 5 to 10 pages each) and assessment of practical performance (2 to 4 random examinations)<br>Language of assessment: German and/or English | | | | | |
| | Modules successfully completed | | 08-OC1 and (08-ACP1 or 08-ANP) | | | | | |
| 08-OCP2-152-m01 | **Organic Chemistry - advanced laboratory course for students of chemistry** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | (not) successfully completed | Modul level | undergraduate |
| | Courses | | P (11) | | | | | |
| | Method of assessment | | Vortestate/Nachtestate (pre and post-experiment examination talks approx. 15 minutes each, log approx. 5 to 10 pages each) and assessment of practical performance (2 to 4 random examinations)<br>Language of assessment: German and/or English | | | | | |
| | Modules successfully completed | | 08-OC2 and (08-OCP1 or OCP1-BC) | | | | | |
| 08-OC3+4-152-m01 | **Organic Chemistry 3 & 4** | | | | | | | |
| | ECTS | 13 | Duration | 2 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (2) + Ü (2) + V (2) + Ü (2) + S (1) | | | | | |
| | Method of assessment | | a) written examination (approx. 90 to 180 minutes) or<br>b) oral examination of one candidate each (20 to 30 minutes) or<br>c) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or<br>d) log (approx. 20 pages) or<br>e) presentation (approx. 30 minutes)<br>Language of assessment: German and/or English | | | | | |

| Subfield Physical and Theoretical Chemistry (40 ECTS credits) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 08-PC-QMS-152-m01 | **Principles of quantum mechanics and spectroscopy** | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (4) + Ü (2) + V (2) | | | | | |
| | Method of assessment | | a) written examination (approx. 90 to 180 minutes) or<br>b) oral examination of one candidate each (20 to 30 minutes) or<br>c) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or<br>d) log (approx. 20 pages) or<br>e) presentation (approx. 30 minutes)<br>Language of assessment: German and/or English<br>creditable for bonus | | | | | |
| 08-PC-TKE-152-m01 | **Thermodynamics, Kinetics, Electrochemistry** | | | | | | | |
| | ECTS | 9 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (4) + Ü (2) | | | | | |
| | Method of assessment | | a) written examination (approx. 90 to 180 minutes) or<br>b) oral examination of one candidate each (20 to 30 minutes) or<br>c) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or<br>d) log (approx. 20 pages) or<br>e) presentation (approx. 30 minutes)<br>Language of assessment: German and/or English<br>creditable for bonus | | | | | |
| | Referred to in LPO I | | § 62 I Nr. 1 | | | | | |
| 08-PCP-152-m01 | **Physical Chemistry (lab)** | | | | | | | |
| | ECTS | 9 | Duration | 1 semester | Method of grading | (not) successfully completed | Modul level | undergraduate |
| | Courses | | P (6) | | | | | |
| | Method of assessment | | Vortestate/Nachtestate (pre and post-experiment examination talks approx. 15 minutes each, log approx. 5 to 10 pages each) and assessment of practical performance (2 to 4 random examinations)<br>Language of assessment: German and/or English | | | | | |
| | Modules successfully completed | | 08-PC-QMS or 08-PC-TKE | | | | | |

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|---|---|---|---|---|---|---|---|---|
| 08-TC-152-m01 | **Quantum Chemistry** | | | | | | | |
| | ECTS | 3 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (2) + Ü (1) | | | | | |
| | Method of assessment | | a) written examination (approx. 90 to 180 minutes) or<br>b) oral examination of one candidate each (20 to 30 minutes) or<br>c) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or<br>d) log (approx. 20 pages) or<br>e) presentation (approx. 30 minutes)<br>Language of assessment: German and/or English<br>creditable for bonus | | | | | |
| | Referred to in LPO I | | § 22 II Nr. 1 h)<br>§ 22 II Nr. 2 f)<br>§ 22 II Nr. 3 f) | | | | | |
| 08-PC-SBL-152-m01 | **Symmetry, chemical bonding and light** | | | | | | | |
| | ECTS | 9 | Duration | 2 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (3) + Ü (2) + V (2) + Ü (2) | | | | | |
| | Method of assessment | | a) written examination (approx. 90 to 180 minutes) or<br>b) oral examination of one candidate each (20 to 30 minutes) or<br>c) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or<br>d) log (approx. 20 pages) or<br>e) presentation (approx. 30 minutes)<br>Language of assessment: German and/or English | | | | | |
| **Subfield Basics of Natural Sciences (23 ECTS credits)** | | | | | | | | |
| 08-BC1-152-m01 | **Biochemistry 1** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (2) + Ü (1) | | | | | |
| | Method of assessment | | written examination (approx. 60 to 90 minutes) | | | | | |
| | Additional Information | | according to § 2 para. 2 sentence 2 APOLmCh in conjunction with No. II 2nd letter e) and No. II 1st letter c) of annex 1 to the APOLmCh and No. 3 of annex 3 to the APOLmCh | | | | | |
| | Referred to in LPO I | | § 42 I Nr. 2<br>§ 62 I Nr. 2 | | | | | |
| 10-M-MCH-172-m01 | **Mathematics for students in Chemistry and Biochemistry** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (3) + Ü (2) | | | | | |
| | Method of assessment | | written examination (approx. 90 to 120 minutes) and written exercises (approx. 25) | | | | | |

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|---|---|---|---|---|---|---|---|---|
| 11-EFNF-152-m01 | **Introduction to Physics for Students of other Disciplines** | | | | | | | |
| | ECTS | 7 | Duration | 2 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (4) + V (3) | | | | | |
| | Method of assessment | | written examination (60 to 120 minutes) | | | | | |
| | Additional Information | | according to § 2 para. 2 sentence 2 APOLmCh in conjunction with No. I 2nd letter d) and No. I 1st letter d) of annex 1 to the APOLmCh and No. 4 of annex 2 to the APOLmCh | | | | | |
| 11-PFNF-152-m01 | **Laboratory Course Physics for Students of other Disciplines** | | | | | | | |
| | ECTS | 3 | Duration | 1 semester | Method of grading | (not) successfully completed | Modul level | undergraduate |
| | Courses | | P (4) | | | | | |
| | Method of assessment | | a) practical assignment with oral test (approx. 15 minutes, during experiments) and b) written examination (approx. 90 minutes).<br>Each experiment comprises preparation, performance and evaluation. Test as well as performance of experiments can each be repeated once. | | | | | |
| | Participants and allocation of places | | Only as part of pool of general transferable skills (ASQ): 10 places (lottery) | | | | | |
| | Additional Information | | according to § 2 para. 2 sentence 2 APOLmCh in conjunction with No. I 2nd letter d) and No. I 1st letter d) of annex 1 to the APOLmCh and No. 4 of annex 2 to the APOLmCh | | | | | |
| 03-TR-152-m01 | **Toxicology and legal studies** | | | | | | | |
| | ECTS | 3 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (1) + V (1) | | | | | |
| | Method of assessment | | written examination (approx. 90 minutes) | | | | | |
| | 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 | | | | | |
| | Referred to in LPO I | | § 22 II Nr. 1 h)<br>§ 22 II Nr. 2 f)<br>§ 22 II Nr. 3 f) | | | | | |
| **Key Skills Area (20 ECTS credits)** | | | | | | | | |
| **General Key Skills (5 ECTS credits)**<br>Students may select any of the modules offered as part of the pool of general transferable skills (ASQ) of JMU. | | | | | | | | |
| **Subject-specific Key Skills (15 ECTS credits)** | | | | | | | | |
| **Subject-specific Key Skills, Compulsory Courses (5 ECTS credits)** | | | | | | | | |
| 08-VP-152-m01 | **Advanced laboratory course** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | (not) successfully completed | Modul level | undergraduate |
| | Courses | | P (10) | | | | | |
| | Method of assessment | | talk (approx. 15 minutes)<br>Language of assessment: German and/or English | | | | | |
| | Additional Information | | Additional information on module duration: block placement / block taught practical course with a duration of 20 days. | | | | | |

| Subject-specific Key Skills, Compulsory Electives (10 ECTS credits) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 08-BC2-152-m01 | **Biochemistry 2** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (2) + Ü (1) | | | | | |
| | Method of assessment | | written examination (approx. 60 to 90 minutes) | | | | | |
| | Additional Information | | Pursuant to Section 2 Subsection 2 Sentence 2 Verordnung über die Ausbildung und Prüfung der Staatlich geprüften Lebensmittelchemikerinnen und Lebensmittelchemiker (Regulation on the training and examination of state-certified food chemists, APOLmCh) in conjunction with No. II 2. Letter e) and No. II 1. Letter c) of Annex 1 of APOLmCh and No. 3 of Annex 3 of APOLmCh. | | | | | |
| 08-BCP-152-m01 | **Practical course of Biochemistry** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | (not) successfully completed | Modul level | undergraduate |
| | Courses | | P (6) | | | | | |
| | Method of assessment | | Log (approx. 30 pages)<br>Assessment offered: Once a year, summer semester | | | | | |
| | Modules successfully completed | | 08-BC1 | | | | | |
| | Participants and allocation of places | | Students of the Bachelor's degree programme Biochemie (Biochemistry, 180 ECTS credits): no restrictions with regard to available places.<br>Students of the Bachelor's degree programme Chemie (Chemistry, 180 ECTS credits): no more than 6 places; places will be allocated according to the number of subject semesters, among applicants with the same number of subject semesters, places will be allocated by lot; a waiting list will be maintained and places re-allocated by lot as they become available. | | | | | |
| 08-PS3-152-m01 | **Applied Spectroscopy 3** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (3) | | | | | |
| | Method of assessment | | a) written examination (approx. 90 to 180 minutes) or<br>b) oral examination of one candidate each (20 to 30 minutes) or<br>c) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or<br>d) log (approx. 20 pages) or<br>e) presentation (approx. 30 minutes)<br>Language of assessment: German and/or English | | | | | |
| 08-PKC-152-m01 | **Programming and numerical methods** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | (not) successfully completed | Modul level | undergraduate |
| | Courses | | S (2) + Ü (2) | | | | | |
| | Method of assessment | | a) written examination (approx. 90 to 180 minutes) or<br>b) oral examination of one candidate each (20 to 30 minutes) or<br>c) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or<br>d) log (approx. 20 pages) or<br>e) presentation (approx. 30 minutes)<br>Language of assessment: German and/or English<br>Assessment offered: Once a year, summer semester | | | | | |

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| 08-OP-152-m01 | **Advanced chemical practical course** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | (not) successfully completed | Modul level | undergraduate |
| | Courses | | P (10) | | | | | |
| | Method of assessment | | a) talk (approx. 15 minutes) or<br>b) log (approx. 10 to 20 pages)<br>Language of assessment: German and/or English | | | | | |
| | Additional Information | | Additional information on module duration: block placement / block taught practical course with a duration of 20 days. | | | | | |
| 08-GC-242-m01 | **Green and sustainable (organic) chemistry** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (2) + Ü (1)<br>Module taught in: German or English | | | | | |
| | Method of assessment | | a) portfolio (approx. approx. 40 hours total) or<br>b) written examination (approx. 60 to 90 minutes)<br>Language of assessment: German and/or English<br>Assessment offered: Once a year, winter semester | | | | | |
| **Thesis (10 ECTS credits)** | | | | | | | | |
| 08-BA-152-m01 | **Bachelor Thesis** | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | No courses assigned to module | | | | | |
| | Method of assessment | | Bachelor's thesis (approx. 40 pages)<br>Language of assessment: German and/or English | | | | | |
| | other prerequisites | | The supervisor may make the successful completion of certain modules that are relevant for the respective topic a prerequisite for the assignment of the topic. | | | | | |
| | Additional Information | | Time to complete: 8 weeks. | | | | | |
| **Compulsory Electives, Appendix DA (170 ECTS credits)** | | | | | | | | |
| **Subfield General and Inorganic Chemistry (35 ECTS credits)** | | | | | | | | |
| 08-AC1-152-m01 | **Principles of Inorganic Chemistry** | | | | | | | |
| | ECTS | 8 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (4) + V (2) | | | | | |
| | Method of assessment | | a) written examination (approx. 90 to 180 minutes) or<br>b) oral examination of one candidate each (20 to 30 minutes) or<br>c) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or<br>d) log (approx. 20 pages) or<br>e) presentation (approx. 30 minutes)<br>Language of assessment: German and/or English | | | | | |
| | 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 | | | | | |
| | Referred to in LPO I | | § 42 I Nr. 1 and § 22 II Nr. 1 h)<br>§ 62 I Nr. 1 | | | | | |

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|---|---|---|---|---|---|---|---|---|
| 08-ACP1-152-m01 | **Inorganic Chemistry 1 (lab)** | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | (not) successfully completed | Modul level | undergraduate |
| | Courses | | P (12) + S (2) | | | | | |
| | 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)] and Vortestate/Nachtestate (pre and post-experiment examination talks approx. 15 minutes each, log approx. 5 to 10 pages each) and assessment of practical assignments (2 to 4 random examinations)<br>Language of assessment: German and/or English<br>Assessment offered: Once a year, winter semester | | | | |
| | Additional Information | | according to § 2 para. 2 sentence 2 APOLmCh in conjunction with No. I 1st letter a) of annex 1 to the APOLmCh and No. 1 of annex 2 to the APOLmCh | | | | | |
| 08-AS1-152-m01 | **Inorganic Chemistry of the Elements** | | | | | | | |
| | ECTS | 6 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (2) + V (2) | | | | | |
| | Method of assessment | | a) written examination (approx. 90 to 180 minutes) or<br>b) oral examination of one candidate each (20 to 30 minutes) or<br>c) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or<br>d) log (approx. 20 pages) or<br>e) presentation (approx. 30 minutes)<br>Language of assessment: German and/or English | | | | | |
| | 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 | | | | | |
| | Referred to in LPO I | | § 62 I Nr. 1 | | | | | |
| 08-ANP-152-m01 | **Analytical Chemistry (lab)** | | | | | | | |
| | ECTS | 6 | Duration | 1 semester | Method of grading | (not) successfully completed | Modul level | undergraduate |
| | Courses | | P (12) + S (1) | | | | | |
| | Method of assessment | | Vortestate/Nachtestate (pre and post-experiment examination talks approx. 15 minutes each, log approx. 5 to 10 pages each) and assessment of practical performance (2 to 4 random examinations)<br>Language of assessment: German and/or English<br>Assessment offered: Once a year, summer semester | | | | | |
| | Additional Information | | according to § 2 para. 2 sentence 2 APOLmCh in conjunction with No. I 1st letter a) of annex 1 to the APOLmCh and No. 1 of annex 2 to the APOLmCh | | | | | |

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|---|---|---|---|---|---|---|---|---|
| 08-AC-FS-DA-152-m01 | **Solid State Chemistry, Spectroscopic Methods (DD)** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (2) + V (2) | | | | | |
| | Method of assessment | | a) written examination (approx. 90 to 180 minutes) or<br>b) oral examination of one candidate each (20 to 30 minutes) or<br>c) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or<br>d) log (approx. 20 pages) or<br>e) presentation (approx. 30 minutes)<br>Language of assessment: German and/or English | | | | | |
| **Subfield Organic Chemistry (28 ECTS credits)** | | | | | | | | |
| 08-OC1-152-m01 | **Organic Chemistry 1** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (3) + Ü (1) | | | | | |
| | Method of assessment | | a) written examination (approx. 90 to 180 minutes) or<br>b) oral examination of one candidate each (20 to 30 minutes) or<br>c) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or<br>d) log (approx. 20 pages) or<br>e) presentation (approx. 30 minutes)<br>Language of assessment: German and/or English | | | | | |
| | 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 | | | | | |
| | Referred to in LPO I | | § 62 I Nr. 2 | | | | | |
| 08-OC2-152-m01 | **Organic Chemistry 2 and analytical methods in organic chemistry** | | | | | | | |
| | ECTS | 9 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (3) + Ü (1) + V (2) | | | | | |
| | Method of assessment | | a) written examination (approx. 90 to 180 minutes) or<br>b) oral examination of one candidate each (20 to 30 minutes) or<br>c) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or<br>d) log (approx. 20 pages) or<br>e) presentation (approx. 30 minutes)<br>Language of assessment: German and/or English | | | | | |
| 08-OCP1-172-m01 | **Organic Chemistry - lab 1** | | | | | | | |
| | ECTS | 8 | Duration | 1 semester | Method of grading | (not) successfully completed | Modul level | undergraduate |
| | Courses | | P (14) | | | | | |
| | Method of assessment | | Vortestate/Nachtestate (pre and post-experiment examination talks approx. 15 minutes each, log approx. 5 to 10 pages each) and assessment of practical performance (2 to 4 random examinations)<br>Language of assessment: German and/or English | | | | | |
| | Modules successfully completed | | 08-OC1 and (08-ACP1 or 08-ANP) | | | | | |

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|---|---|---|---|---|---|---|---|---|
| 08-OC-OC3-DA-152-m01 | **Organic Chemistry 3 (DD)** | | | | | | | |
| | ECTS | 6 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (2) + Ü (2) | | | | | |
| | Method of assessment | | a) written examination (approx. 90 to 180 minutes) or<br>b) oral examination of one candidate each (20 to 30 minutes) or<br>c) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or<br>d) log (approx. 20 pages) or<br>e) presentation (approx. 30 minutes)<br>Language of assessment: German and/or English | | | | | |
| **Subfield Physical and Theoretical Chemistry (37 ECTS credits)** | | | | | | | | |
| 08-PC-QMS-152-m01 | **Principles of quantum mechanics and spectroscopy** | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (4) + Ü (2) + V (2) | | | | | |
| | Method of assessment | | a) written examination (approx. 90 to 180 minutes) or<br>b) oral examination of one candidate each (20 to 30 minutes) or<br>c) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or<br>d) log (approx. 20 pages) or<br>e) presentation (approx. 30 minutes)<br>Language of assessment: German and/or English<br>creditable for bonus | | | | | |
| 08-PC-TKE-152-m01 | **Thermodynamics, Kinetics, Electrochemistry** | | | | | | | |
| | ECTS | 9 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (4) + Ü (2) | | | | | |
| | Method of assessment | | a) written examination (approx. 90 to 180 minutes) or<br>b) oral examination of one candidate each (20 to 30 minutes) or<br>c) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or<br>d) log (approx. 20 pages) or<br>e) presentation (approx. 30 minutes)<br>Language of assessment: German and/or English<br>creditable for bonus | | | | | |
| | Referred to in LPO I | | § 62 I Nr. 1 | | | | | |
| 08-PCP-152-m01 | **Physical Chemistry (lab)** | | | | | | | |
| | ECTS | 9 | Duration | 1 semester | Method of grading | (not) successfully completed | Modul level | undergraduate |
| | Courses | | P (6) | | | | | |
| | Method of assessment | | Vortestate/Nachtestate (pre and post-experiment examination talks approx. 15 minutes each, log approx. 5 to 10 pages each) and assessment of practical performance (2 to 4 random examinations)<br>Language of assessment: German and/or English | | | | | |
| | Modules successfully completed | | 08-PC-QMS or 08-PC-TKE | | | | | |

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| 08-TC-152-m01 | **Quantum Chemistry** | | | | | | | |
| | ECTS | 3 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (2) + Ü (1) | | | | | |
| | Method of assessment | | a) written examination (approx. 90 to 180 minutes) or<br>b) oral examination of one candidate each (20 to 30 minutes) or<br>c) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or<br>d) log (approx. 20 pages) or<br>e) presentation (approx. 30 minutes)<br>Language of assessment: German and/or English<br>creditable for bonus | | | | | |
| | Referred to in LPO I | | § 22 II Nr. 1 h)<br>§ 22 II Nr. 2 f)<br>§ 22 II Nr. 3 f) | | | | | |
| 08-PC-SBL-DA-152-m01 | **Symmetry, chemical bonding and light (DD)** | | | | | | | |
| | ECTS | 6 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (3) + Ü (2) | | | | | |
| | Method of assessment | | a) written examination (approx. 90 to 180 minutes) or<br>b) oral examination of one candidate each (20 to 30 minutes) or<br>c) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or<br>d) log (approx. 20 pages) or<br>e) presentation (approx. 30 minutes)<br>Language of assessment: German and/or English | | | | | |
| **Subfield Basics of Natural Sciences (20 ECTS credits)** | | | | | | | | |
| 08-BC1-152-m01 | **Biochemistry 1** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (2) + Ü (1) | | | | | |
| | Method of assessment | | written examination (approx. 60 to 90 minutes) | | | | | |
| | Additional Information | | according to § 2 para. 2 sentence 2 APOLmCh in conjunction with No. II 2nd letter e) and No. II 1st letter c) of annex 1 to the APOLmCh and No. 3 of annex 3 to the APOLmCh | | | | | |
| | Referred to in LPO I | | § 42 I Nr. 2<br>§ 62 I Nr. 2 | | | | | |
| 10-M-MCH-172-m01 | **Mathematics for students in Chemistry and Biochemistry** | | | | | | | |
| | ECTS | 5 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (3) + Ü (2) | | | | | |
| | Method of assessment | | written examination (approx. 90 to 120 minutes) and written exercises (approx. 25) | | | | | |

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| 11-EFNF-152-m01 | **Introduction to Physics for Students of other Disciplines** | | | | | | | |
| | ECTS | 7 | Duration | 2 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | V (4) + V (3) | | | | | |
| | Method of assessment | | written examination (60 to 120 minutes) | | | | | |
| | Additional Information | | according to § 2 para. 2 sentence 2 APOLmCh in conjunction with No. I 2nd letter d) and No. I 1st letter d) of annex 1 to the APOLmCh and No. 4 of annex 2 to the APOLmCh | | | | | |
| 11-PFNF-152-m01 | **Laboratory Course Physics for Students of other Disciplines** | | | | | | | |
| | ECTS | 3 | Duration | 1 semester | Method of grading | (not) successfully completed | Modul level | undergraduate |
| | Courses | | P (4) | | | | | |
| | Method of assessment | | a) practical assignment with oral test (approx. 15 minutes, during experiments) and b) written examination (approx. 90 minutes).<br>Each experiment comprises preparation, performance and evaluation. Test as well as performance of experiments can each be repeated once. | | | | | |
| | Participants and allocation of places | | Only as part of pool of general transferable skills (ASQ): 10 places (lottery) | | | | | |
| | Additional Information | | according to § 2 para. 2 sentence 2 APOLmCh in conjunction with No. I 2nd letter d) and No. I 1st letter d) of annex 1 to the APOLmCh and No. 4 of annex 2 to the APOLmCh | | | | | |
| **Subfield Competences from foreign university (50 ECTS credits)** | | | | | | | | |
| 08-VPUB1-152-m01 | **Qualifications - Partner University 1** | | | | | | | |
| | ECTS | 25 | Duration | 2 semester | Method of grading | (not) successfully completed | Modul level | undergraduate |
| | Courses | | No courses assigned to module<br>Course(s) as specified by partner university abroad | | | | | |
| | Method of assessment | | Assessments as specified by partner university abroad<br>Language of assessment: German and/or language spoken at partner university abroad | | | | | |
| | other prerequisites | | Please consult with course advisory service in advance. | | | | | |
| 08-VPUB2-152-m01 | **Qualifications - Partner University 2** | | | | | | | |
| | ECTS | 25 | Duration | 2 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | No courses assigned to module | | | | | |
| | Method of assessment | | Assessments as specified by partner university abroad<br>Language of assessment: German and/or language spoken at partner university abroad | | | | | |
| | other prerequisites | | Please consult with course advisory service in advance. | | | | | |

| Thesis (10 ECTS credits) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 08-BA-152-m01 | **Bachelor Thesis** | | | | | | | |
| | ECTS | 10 | Duration | 1 semester | Method of grading | numerical grade | Modul level | undergraduate |
| | Courses | | No courses assigned to module | | | | | |
| | Method of assessment | | Bachelor's thesis (approx. 40 pages)<br>Language of assessment: German and/or English | | | | | |
| | other prerequisites | | The supervisor may make the successful completion of certain modules that are relevant for the respective topic a prerequisite for the assignment of the topic. | | | | | |
| | Additional Information | | Time to complete: 8 weeks. | | | | | |