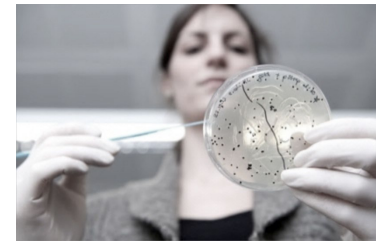
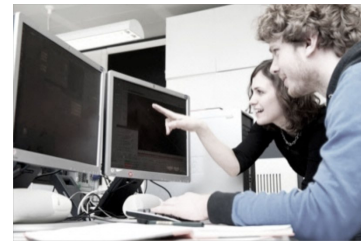
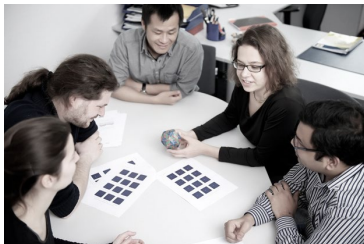
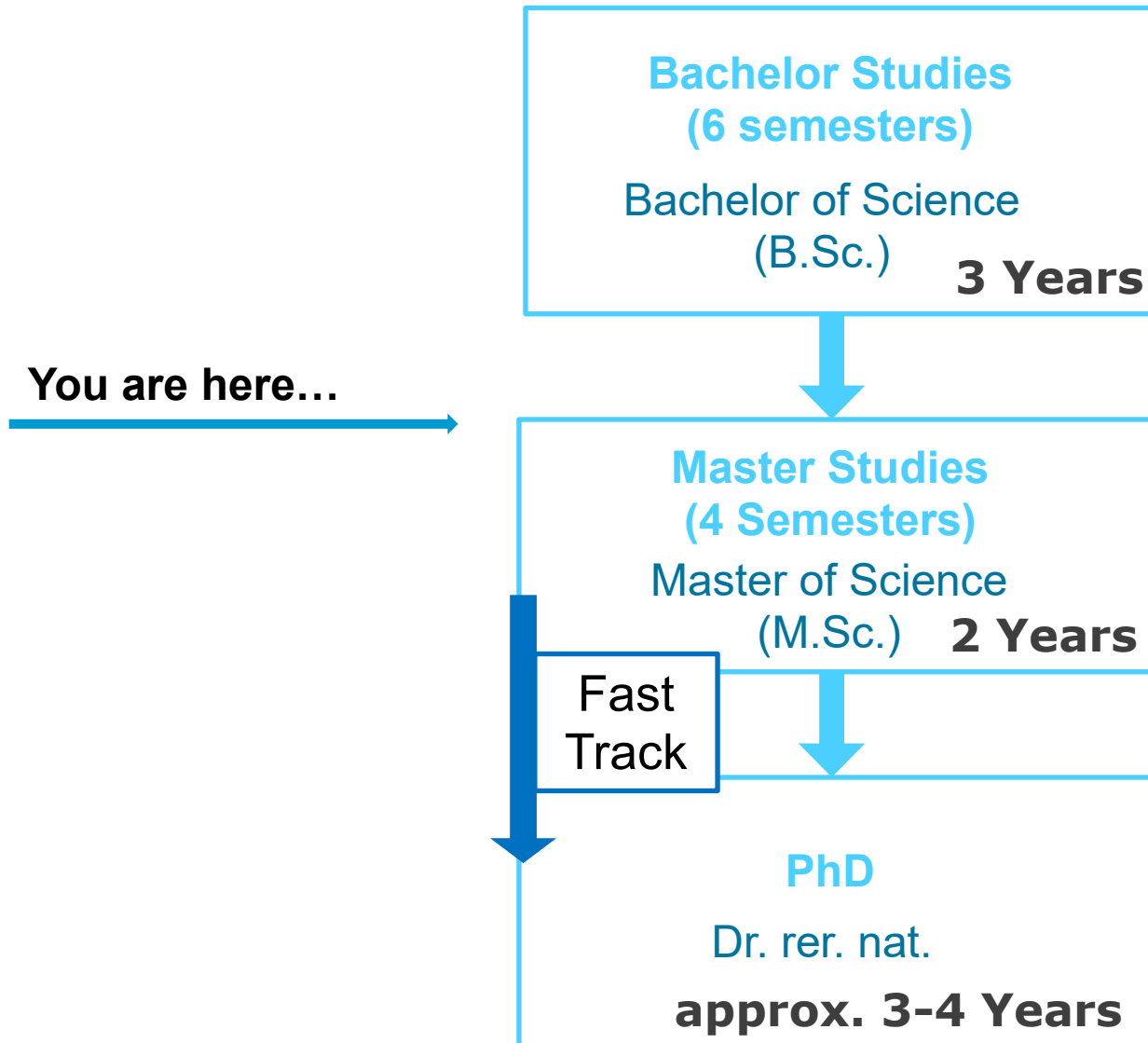


Welcome to the Master Studies in ...

... Chemistry & Nanoscience &
Lehramt



Now the fun part begins ...



Topics

Master Chemistry

- Choosing your courses (Schwerpunktkurse)
- Master exam
- Master thesis

Master Nanoscience

- Choosing your courses
- Professional internship (Berufspraktische Tätigkeit)
- Master exam
- Master thesis

Master of Education (Lehramt) - Chemistry

Master Chemistry

Advanced courses in Chemistry (Schwerpunktkurse):

- 6 ECTS per lecture course, plus optional 6 ECTS for accompanying lab course (can only be taken together with lecture course)
- description in module book ([here](#)), video ([here](#))

Additional courses offered by the Department of Chemistry

- on the website ([here](#))

Grade: exam (oral or written) + internship report for the laboratory part, if applies

- Please register for the courses on ZEUS
- In case of doubt: register for more courses than you plan to take
- Lecturers will provide lecture slides and additional information or materials on ILIAS
- !!! Registration for internship with lecturer !!!

Master Chemistry: Choosing Courses

| Semester | Module combination ⁽¹⁾ | ECTS credits |
|----------|---|--------------|
| 1-2 | Modules from the focus area of study | 18 |
| 1-2 | Module from the 2. major | 12 |
| 1-2 | Modules from the 3. major | 12 |
| 1-2 | Modules from the area of electives or the area of the majors inorganic, organic or physical chemistry, with a maximum of 6 ECTS credits from your focus area of study and 12 ECTS credits from the area of the 2. and 3. major. You may acquire a maximum of 12 ECTS credits from modules outside of chemistry. | 18 |
| 3 | Oral master`s examination | 15 |
| 3-4 | Master`s thesis with colloquium | 30 |
| | | 15 |
| | Total | 120 |



60 ECTS

⁽¹⁾ In the module guide you can find the elective modules and the areas to which they belong (inorganic, organic and physical chemistry, electives). The Examination Board decides which other modules and electives are permitted.

| Zeit | Montag | Dienstag | Mittwoch | Donnerstag | Freitag |
|---------------|--|---|---|---|---|
| 08.15 - 09.45 | | | | | |
| 10.00 - 11.30 | Computational Chemistry Peter Z 1003 | Biopolymer Chemistry (Nucleic Acids, Carbohydrates, Proteins) Marx/Wittmann R 511 16.04. - 03.05. 2024 | | Biopolymer Chemistry (Nucleic Acids, Carbohydrates, Proteins) Marx/Wittmann R 512 16.04. - 03.05. 2024 | High-Resolution NMR Kovermann M 701 |
| 11.45 - 13.15 | Molecular Spectroscopy Zumbusch M 628 | Synthesis and Properties of Functional Materials Mecking/Göttker L 829 | | Synthesis and Properties of Functional Materials Mecking/Göttker L 601 | Biopolymer Chemistry (Nucleic Acids, Carbohydrates, Proteins) Marx/Wittmann R 512 16.04. - 03.05. 2024 |
| 13.30 - 15.00 | | | High-Resolution NMR Kovermann L 601 | Computational Chemistry Peter L 829 | |
| 15.15 - 16.45 | Synthesis of natural products and drugs Gaich L 601 | | Biopolymer Chemistry (Nucleic Acids, Carbohydrates, Proteins) Marx/Wittmann R 512 16.04. - 03.05. 2024 | Molecular Spectroscopy Zumbusch L 602 | |
| 17.00 - 18.30 | Synthesis of natural products and drugs Gaich L 601 | | | | |

Master exams (Chemistry)

- two oral exams
- exam in your focus area (1. Prüfungsfach):
60 min duration with two examiners
- exam in your 2nd and 3rd major (Zweit-/Drittfach):
duration 2 x 30 min with two examiners,
one each from the subject area of your 2nd and 3rd major

Topics: Master courses and the knowledge gained during the Bachelor studies

- examiners: free choice

The Master thesis

- duration 6-9 months (upon application)
- independent research project in one of the research groups
- first examiner: supervisor
- second examiner: proposal of the student, needs to be approved by the dean of studies
- final oral presentation of the results of your Master research
- grade is based on your written Master 's thesis

Master thesis: Fast track option

- skip Master thesis and start immediately with your PhD studies
- Master degree will be granted after handing in and presenting your 6-months report, which will be graded
- Register after your Master exams
- Requirements, prerequisites:
 - Bachelor-Grade of 1,8 or better, or you must be among the 15% of your cohort
 - Master-Grade of 1,3 or better

For information regarding study regulations etc.:

Chemistry -

Application

Master

- Combination of Modules and ECTS credits in the master's programme

Master Courses

Profiles

Career

FAQ

Life Science +

Nanoscience +

Information for first-year students

Klausurtermine

Studies Master Chemistry



The Master's Programme Chemistry

You can acquire a total of **120 ECTS credits** in the master's programme. Standard period of study is **four semesters**. The master's programme focus is on advanced, already research-related courses in the subjects of inorganic, organic and physical chemistry, as well as in the subjects surrounding the department's main research areas of life sciences and material sciences. These are offered as compulsory elective subjects (see the module overview at the end of this page). One of the notable features in the master's programme are the **focus area courses** in which practical experience projects are carried out with strong references to research and intensive supervision. These courses offer a substantial foundation for a highly qualified master's thesis, as well as for doctoral studies which usually follow the master's degree.

Contact

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Student Advisory Service
Room L 802
Phone: +49 / (0)7531 / 88-2816

[Send email](#) ✉

Studies Master Chemistry

[Stundenpläne SS 2022 \(PDF, 81 KB\)](#)

[Modulhandbuch \(PDF, 706 KB\)](#)

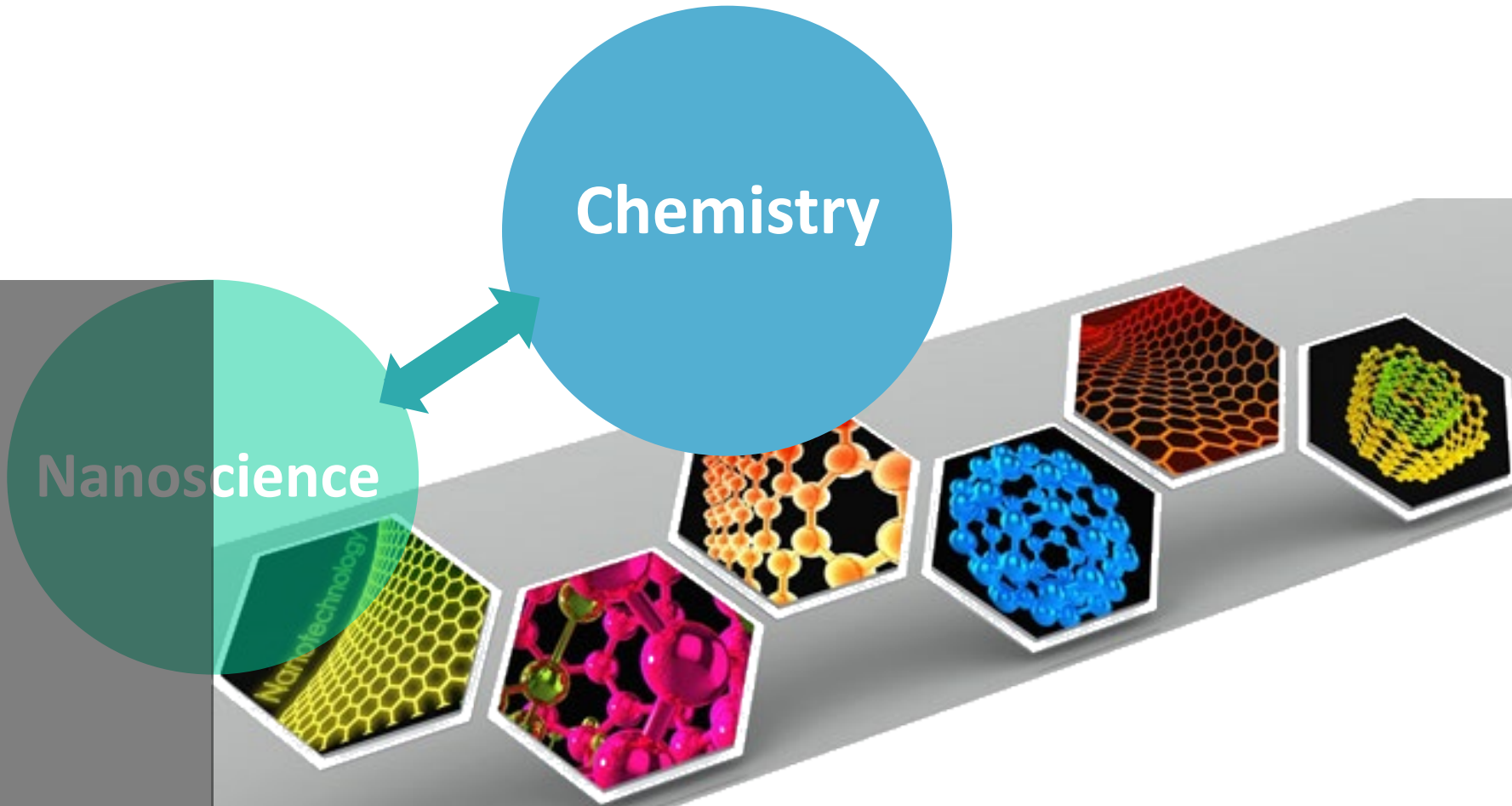
[Application for permission to submit a master's thesis \(PDF, 104 KB\)](#)

[Application for admission to the oral master's examination \(PDF, 187 KB\)](#)

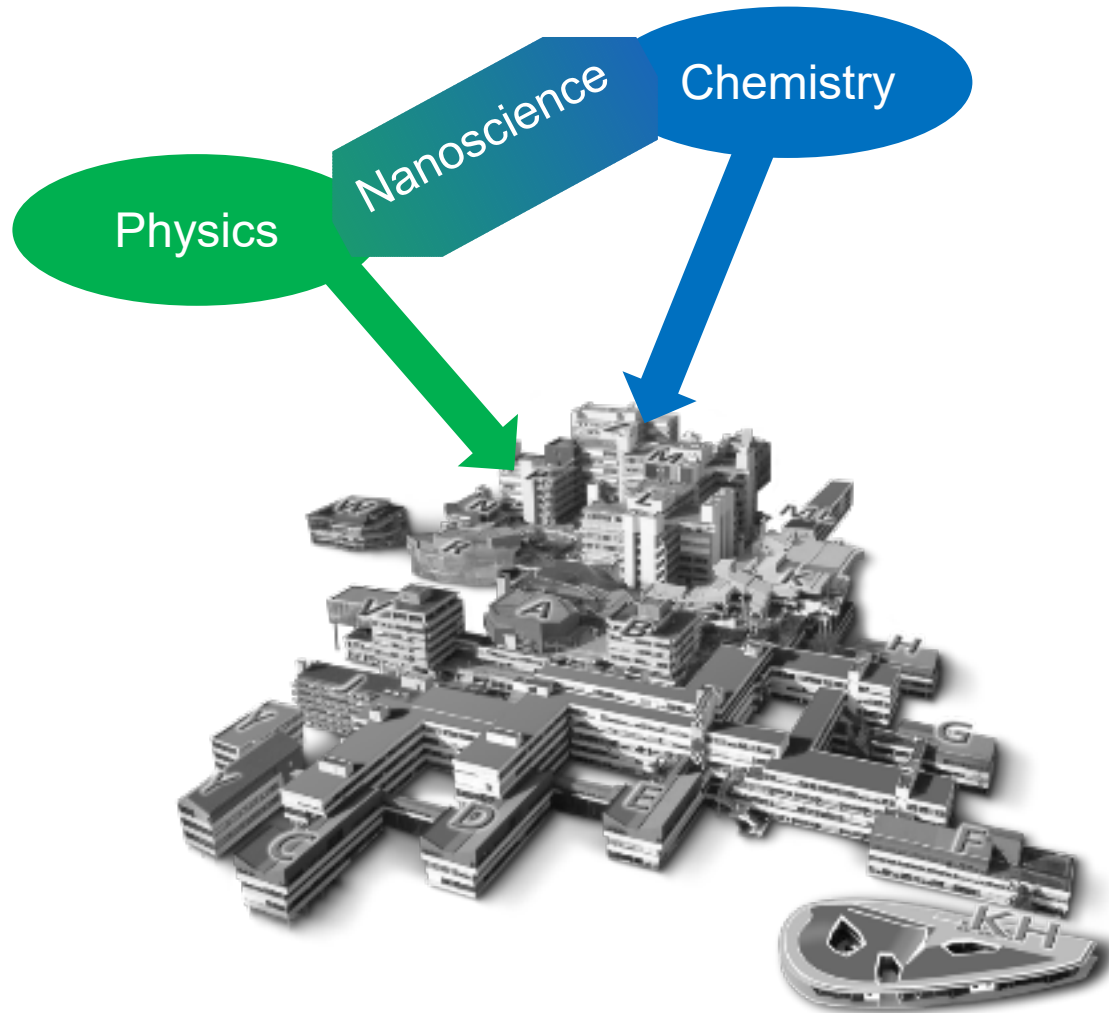
[Study requirements and examination regulations \(PDF, 96 KB\)](#)

[Admission regulations \(PDF, 52 KB\)](#)

Nanoscience



Nanoscience in Konstanz



Master Nanoscience: Study plan and how to choose courses

| Pos. | Semester | | ECTS |
|------|-------------|---|------------|
| | | Modules / Course Work | |
| 1. | 1, 2 | Subject Area (A): Chemical Aspects of Functional Materials | 30 |
| 2. | 1, 2 | Subject Area (B): Physical Aspects of Functional Materials | 18 |
| 3. | 1, 2 | Subject Area (C): Additional courses chosen from the portfolio of Master courses offered by the faculties of Chemistry and Physics not taken in positions 1. and 2. | 12 |
| 4. | 3 | Professional Internship (Berufspraktische Tätigkeiten) | 10 |
| 5. | 3 | Oral Master Exams | 10 |
| 6. | 3,4 | Master Thesis | 30 |
| | | Master Colloquium | 10 |
| | Sum: | | 120 |

Master Nanoscience: Choosing Courses

Subject Area A: Chemical Aspects of Functional Materials

Summer Term:

- Synthesis and Properties of Functional Materials (S. Mecking / I. Göttker)

On request:

- Molecular Spectroscopy (A. Zumbusch)
- Computational Chemistry (Ch. Peter)
- Bipolymer Chemistry (V. Wittmann, A. Marx)

Winter Term:

- Dispersion Colloids in Research and Industry (A. Wittemann)
- Advanced Physical Chemistry (A. Zumbusch)
- Nano Chemistry and Analytics (C. Ruiz-Agudo)

On request:

- Industrial Chemistry and Renewable Resources (S. Mecking / I. Göttker)
- Advanced Metal-Organic Chemistry (M. Unterlass / R. Winter)
- Breakthroughs in Natural Sciences Exemplified by Nobel Prizes (M. Kovermann)
- Advanced Organic Chemistry (T. Gaich / V. Wittmann)
- Biocatalysis – From Chemical Logic to Modern Enzymology (L. Barra / J. Hartig)

Further courses from Physical Chemistry and Inorganic Chemistry can be counted as courses in subject area A (upon request) and are eligible for subject area C

Master Nanoscience: Choosing Courses

Subject area B: Physical aspects of functional materials



Summer Term 2024

Experimental Physics

Physikalische Bildanalyse mit Python (Prof. Dr. Stefan Karpitschka)

Festkörper-Spektroskopie (Prof. Dr. Martina Müller)

Magnetismus - Von den Grundlagen bis zur Anwendung (apl. Prof. Dr. Mikhail Fonin)

Nanophotonik, Biophysik und ultraschnelle Dynamik mit dem Elektronenmikroskop (Prof. Dr. Peter Baum)

Physik der weichen kondensierten Materie (Prof. Dr. Clemens Bechinger)

Technische Optik - Grundlagen und Anwendungen in der Hightech-Industrie (Hon. Prof. Dr. Michael Totzeck)

Quantum Optics: From Fundamentals to Applications (Dr. Ron Tenne)

Theoretical Physics

Computational Physics of Many-Body Systems (Prof. Dr. Zilberberg)

Parametric and Many-Body Phenomena in Quantum Optics (Javier del Pino)

Master Nanoscience: How to choose courses

| Pos. | Semester | Modules / Course Work | ECTS |
|------|----------|---|------|
| 1. | 1, 2 | Subject Area (A): Chemical Aspects of Functional Materials | 30 |
| 2. | 1, 2 | Subject Area (B): Physical Aspects of Functional Materials | 18 |
| 3. | 1, 2 | Subject Area (C): Additional courses chosen from the portfolio of Master courses offered by the faculties of Chemistry and Physics not taken in positions 1 and 2 | 12 |



Chemistry focus

Physics focus

Master Nanoscience: How to choose courses

| Pos. | Semester | Modules / Course Work | ECTS |
|------|----------|---|------|
| 1. | 1, 2 | Subject Area (A): Chemical Aspects of Functional Materials | 30 |
| 2. | 1, 2 | Subject Area (B): Physical Aspects of Functional Materials | 18 |
| 3. | 1, 2 | Subject Area (C): Additional courses chosen from the portfolio of Master courses offered by the faculties of Chemistry and Physics not taken in positions 1 and 2 | 12 |



Chemistry focus

Physics focus

Exam 1: (A)
Exam 2: (B) + (Chemistry topic)

Exam 1: (A)
Exam 2: (B) + (Physics topic)

+ Master Thesis in Chemistry or Physics

Professional internship (Berufspraktische Tätigkeit)

- Duration: 2 months
- Internship in a (private) company
- or: Internship in a public institution
(e.g. at a research institute; at another university, also during an international exchange stay)
- or: Internship in a research group at the University of Konstanz
(clear distinction from Master Thesis or course internship counted in positions 1 and 2 is compulsory)

Master Lehramt Chemie

Studienelemente und ECTS-Punkte

Erstes Hauptfach - Fachwissenschaftliche Pflicht- und Wahlmodule 12 ECTS

Erstes Hauptfach - Fachdidaktikmodul 10 ECTS

Zweites Hauptfach - Fachwissenschaftliche Pflicht- und Wahlmodule 12 ECTS

Zweites Hauptfach - Fachdidaktikmodul 10 ECTS

Fachwissenschaftliche Flexibilisierungsmodule 18 ECTS

Abschlussarbeit (Masterarbeit) in einem Hauptfach oder Bildungswissenschaften 15 ECTS

Bildungswissenschaften 27 ECTS

Schulpraxissemester 16 ECTS

Master Lehramt Chemie

Wahlmodule

Wahlmodule

| Lehrveranstaltung | SWS | ECTS-Credits | Prüfungsleistung |
|---|----------|--------------|------------------|
| W1 Erweiterungspraktikum Organische Chemie | 5 P | 3 | L |
| W2.1 Biochemie | 4 V | 5 | K |
| W2.2 Praktikum Biochemie | 9 P | 7 | L |
| W3 Heterocyclen und Naturstoffe | 2 V | 3 | K |
| W4 Reaktionsmechanismen | 2 V | 3 | K |
| W5 Integriertes Synthesepraktikum | 8 P | 6 | L |
| W6.1 Synthese und Materialeigenschaften von Polymeren | 4 V | 5 | K |
| W6.2 Praktikum Synthese und Materialeigenschaften von Polymeren | 9 P | 7 | L |
| W7 Koordinationschemie und Metallorganische Chemie | 3 V, 1 Ü | 5 | K |
| W8 Praktikum Anorganische Chemie II | 9 P | 7 | L |
| W9.1 Fortgeschrittene Festkörperchemie | 2 V, 2 Ü | 5 | K |
| W9.2 Praktikum Festkörperchemie | 9 P | 7 | L |
| W10 Physikalische Chemie III | 3 V, 3 U | 7 | K |
| W11 Physikalische Chemie IV | 4 V, 2 Ü | 7 | K |
| W 12 Fortgeschrittenenpraktikum Physikalische Chemie | 7 P | 5 | L |
| W13.1 Kolloidchemie | 3 V, 1 Ü | 5 | K |
| W13.2 Praktikum Kolloidchemie | 9 P | 7 | L |

Verwendete Abkürzungen: V Vorlesung, Ü Übung, S Seminar, P Praktikum, K Klausur, L Leistungsnachweis, SWS Semesterwochenstunden