



Master of Science in Chemistry (MSc in Chemistry)

This is a translation from the original german version of the „Infoblatt zum Masterstudiengang Chemie (MSc in Chemistry)“. It is provided for information purposes only and has no legal force.

General

The Master's program in Chemistry is aiming for the second undergraduate degree *Master of Science in Chemistry*. Based on the knowledge imparted in the Bachelor's program, you will gain a solid foundation for postgraduate study or a career in science. The three-semester (full-time study) Master's program comprises compulsory lectures in the core subjects inorganic, organic and physical chemistry, plus a comprehensive range of electives. In laboratory courses (6 week internships) and the Master's thesis project within a research group, the students will develop the ability to design experiments and interpret results and will be exposed to independent research in current topics of interest. The setup of the program also allows a first specialisation in a specific field.

Program Structure

During the Master course 90 credit points have to be earned. The first two semesters comprise lectures (total of 30 credit points, see below) and two elective laboratory courses (15 credit points each). The Master thesis (26 credit points) and the oral Master examination (4 credit points) are usually completed in the third semester. One credit point corresponds to a workload of approximately 30 working hours according to the European credit transfer system (ECTS).

The program is structured in courses of modules a-g:

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|------------------------|--|
| a) Inorganic Chemistry | e) Elective laboratory courses |
| b) Organic Chemistry | f) Master project and thesis (max. 24 weeks) |
| c) Physical Chemistry | g) oral Master examination |
| d) Mixed Topics | |

The **lectures** offered are structured in compulsory lectures in the core subjects Inorganic Chemistry, Organic Chemistry und Physical Chemistry (12 credit points, modules a-c) and electives (18 credit points, modules a-d). Compulsory lectures must be chosen from at least two different modules a, b or c (table 1, each lecture is worth 3 credit points). Elective lectures can be chosen from modules a-d (tables 1 and 2, each lecture is worth 3 credit points).

Elective laboratory courses (module e) take six weeks fulltime or 12 weeks part-time and must be completed in two different research groups. It is possible to conduct an elective laboratory course at non-University institutions. However, those laboratory courses take generally three months.

Table 1: Selection of compulsory lectures in the Master's program (MSc in Chemistry)

(The complete list of lectures can be found in the course directory: <http://vorlesungsverzeichnis.unibas.ch>)

Compulsory Lectures (3 credit points each)		
a) Inorganic Chemistry	b) Organic Chemistry	c) Physical Chemistry
Metals in Biology	Chemical Biology	Soft Matter and Polymers
Materials for Sustainable Chemistry	Supramolecular Chemistry	Dynamics of Molecules and Chemical Reactions
Photophysics and Photochemistry	Synthesis and Physical Properties of Nanoscale Systems	Molecular Simulations with Chemical and Biological Applications
Chemistry, Physics and Biological Applications of Colloidal Nanocrystals	Stereoselective Organic Synthesis	Biomolecular Nanotechnology
Surface Chemistry and Heterogenous Catalysis	Introduction to NMR Spectroscopy of Proteins and other Biomolecules	Computational Quantum Mechanics Based Design of Matter: Discovering Novel Molecules, Liquids, or Materials
	Total Synthesis of Natural Products	Modern Topics in Molecular and Chemical Physics: From Cold Molecules to Quantum Logic

Table 2: Selection of elective lectures in the Master's program (MSc in Chemistry)

(The complete list of lectures can be found in the course directory: <http://vorlesungsverzeichnis.unibas.ch>)

d) Elective Lectures / Mixed Topics (3 credit points each)		
X-ray Crystallography	Organic Reactions in Industry – Theory & Case Studies	Molecular Dynamics Simulations with Applications in Soft Matter
Bioanalytical Sciences	Biocatalysis in organic synthesis	Computational Design of Drugs and Materials
Applied Electronics for Analytical Chemistry	Basics in Recombinant Protein Production (Practical Laboratory Course)	
Testing Drugs - a Glimpse Into Analytical Chemistry	Forensic Chemistry and Toxicology	
Analytical Chemistry of the Atmosphere: Quantifying Climate Change	Discovery and Optimization of Bioactive Compounds	

General Information

Start of Program: The program can be started in the spring or in the fall semester.

Admission: An admission is possible with a Bachelor degree (BSc) in Chemistry from the University of Basel or with a degree from a University certified by the University of Basel.

After application at the Student Administration Office, the dossier is subject-specific surveyed by the responsible examination commission. If the Bachelor degree is only partially recognized as equivalent by the faculty, the admission to the Master's program can be started with the additional requirement to earn credit points of the Bachelor's program (taught mostly in German). The decision is finally communicated in writing by the Student Administration Office.

Language of Instruction: Language of instruction in the MSC curriculum is English.

Application: Application is possible online on the website <http://www.unibas.ch/anmeldung>; application fee is CHF 100.-. Application deadline for the fall semester is April 30th, for the spring semester November 30th.

Registration/ Transfer to the Master's Program:

Students matriculated at the University of Basel, who want to continue with a MSc in Chemistry after completion of the BSc degree in Chemistry and without interruption of studies, do not need to apply but can directly transfer to the Master's program by registering for the next semester (www.unibas.ch/rueckmeldung). In parallel, the „Absichtserklärung zum Bachelorabschluss“ (in German only, [https://philnat.unibas.ch/dokumente/ bachelorstudium](https://philnat.unibas.ch/dokumente/bachelorstudium)) has to be submitted to the Office of the Dean of Studies of the Faculty of Science.

Regulations:

- „Ordnung für das Masterstudium Chemie“ (of 20.9.2016, in German only)
- „Ordnung für die Bachelor- und Masterstudiengänge der Phil.-Nat. Fakultät der Universität Basel“ (of 5.12.2015, in German only)

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