

Note:

The following curriculum is a consolidated version. It is legally non-binding and for informational purposes only.

The legally binding versions are found in the University of Innsbruck Bulletins (in German).

Original version published in the University of Innsbruck Bulletin of 20 February 2009, Issue 27, No. 149

Modification published in the University of Innsbruck Bulletin of 4 February 2015, Issue 13, No. 166

Complete Version as of 1 October 2015

Curriculum for the **Doctoral Programme Chemistry** at the Faculty of Chemistry and Pharmacy of the University of Innsbruck

§ 1 Qualification profile and objectives

- (1) The Doctoral Programme Chemistry belongs to the group of studies in the natural sciences.
- (2) Graduates of the Doctoral Programme Chemistry have a systematic understanding of their research discipline and command the methods employed by research in this field. Through their submission of an original piece of scientific work, graduates have made their own contribution to research which widens boundaries of knowledge and conforms to the evaluation standards of international experts. The quality and international orientation of the studies promote the graduates' mobility and sharpen their perception beyond the boundaries of their special field. The key qualifications acquired qualify the graduates to adapt their expertise to fast-changing requirements.
- (3) The Doctoral Programme Chemistry at the University of Innsbruck serves to educate and train junior scientists in the field of chemistry and its related disciplines.
- (4) Graduates of the doctoral programme are able to independently elaborate and present issues in the natural sciences on a very high level of subject-related and methodical expertise. Additionally, students acquire general scientific and communicative competences required from successful professional scientists in leading positions in an academic, industrial, or public environment. In particular, this includes the following fields of knowledge and skills:

Knowledge and understanding:

- in-depth knowledge of the natural-science disciplines relevant for the dissertation topic, particularly in the core areas of chemistry and its related disciplines; this includes the most important strategies and methods of modern research in chemistry;
- detailed knowledge required for successful work on the dissertation, particularly in the core subjects of chemistry and its related disciplines; this includes the current literature relevant for successful work on the dissertation;

Practical skills:

- skills to plan, practically carry out, select methods for, and interpret natural-science approaches for working on the dissertation topic;
- skills to deepen and widen one's practical experience and knowledge of pertinent methods in the special subject field of the dissertation;
- skills to research and critically interpret scientific literature and other information, including the use of data bases relevant in the field.

Communicative skills:

- skills to present and explain the scientific results of one's own research;
- skills to critically assess one's own research results and those of others in relation to the international state of knowledge in terms of natural science facts, concepts, and theories;
- skills to communicate with chemists, natural scientists, or a general public consisting of interested laypeople to explain, discuss critically, and present effectively scientific results and subject matter;

Competences for the profession as a scientist:

- understanding career requirements of independent scientists in academic, industrial or public environments;
- understanding quality controls in laboratories, international quality standards (e.g. good scientific practice) and pertinent legal standards;
- competence to write scientific publications according to the formal, ethical, and qualitative standards of international publications;
- knowledge of pertinent national and international research funding organizations;
- understanding ethically relevant issues (e.g. methods of data collection, plagiarism, co-authorship) in scientific practice and knowledge of pertinent basic standards and problem solutions.

§ 2 Duration and scope

The Doctoral Programme Chemistry takes three years (six semesters), which equals 180 ECTS credits.

§ 3 Admission

- (1) Valid proof of the necessary academic level for admission to the Doctoral Programme Chemistry must be provided. This includes proof of completion of relevant diploma or master programmes, of completion of relevant diploma or master programmes at a university of applied science or completion of other equivalent studies at an accredited Austrian or non-Austrian post-secondary educational institution. If equivalency is given in principle, and only a few elements are missing for full equivalency, the rector's office is entitled to combine the determination of equivalency with the obligation to pass certain examinations in the course of the Doctoral Programme Chemistry.
- (2) Relevant studies include, in any case, the completed Diploma Programme Chemistry, the Teacher Accreditation Programme Chemistry with Diploma Thesis for the School Subject Chemistry, the Master Programme Chemistry, as well as the Master Programme Materials Sciences and Nanosciences at the University of Innsbruck.

§ 4 Types of courses and maximum number of students per course

- (1) Courses without continuous performance assessment:

Lectures (VO) are courses held in lecture format. They introduce the research areas, methods and schools of thought for a given subject. Maximum number of participants: 60

- (2) Courses with continuous performance assessment:

Seminars (SE) provide in-depth treatment of scientific topics through students' presentations and discussion thereof. Maximum number of participants: 60

§ 5 Procedure for the allocation of places in courses with a limited number of participants

Students whose study time will be prolonged if they are not admitted are to be given priority.

§ 6 Modules

- (1) The following compulsory modules covering 30 ECTS-Credits must be passed:

1.	Compulsory Module: Scientific Basics / Core Skills of the Thesis Topic	h	ECTS-Credits
	Courses, as defined in the dissertation agreement, equal to 7.5 ECTS-Credits must be completed to develop the scientific basis/core competences for the dissertation topic.	-	7.5
	Total	-	7.5
	Objective: After the successful completion of this module, students possess the high level of interdisciplinary knowledge necessary for working on the dissertation.		
	Prerequisites: as defined in the respective curricula		

2.	Compulsory Module: Department Seminar	h	ECTS-Credits
	Compulsory participation in five special field seminars as defined by in the dissertation agreement and based on the dissertation theme; special fields are: Analytical Chemistry, Inorganic Chemistry, Biochemistry, Organic Chemistry, Physical Chemistry, Textile Chemistry, and Theoretical Chemistry.		
a.	SE Special Field Seminar I	2	2
b.	SE Special Field Seminar II	2	2
c.	SE Special Field Seminar III	2	2
d.	SE Special Field Seminar IV	2	2
e.	SE Special Field Seminar V	2	2
	Total	10	10
	Objective: Having successfully completed this module, students are able to actively participate in the discussion of the current state of knowledge in the area of the dissertation topic and can critically reflect on and discuss issues with experts in the chosen special discipline of chemistry.		
	Prerequisites: none		

3.	Compulsory Module: Lecture Series Austrian Chemical Society / Center for Molecular Biosciences Innsbruck / Materials and Nano-Sciences / High Performance Computing	h	ECTS-Credits
	SE Lecture Series Participation in a total of 15 lectures of the Gesellschaft Österreichischer Chemiker (Austrian Society of Chemists; GÖCh) and/or of the Center for Molecular Biosciences Innsbruck (CMBI) and/or of the area Center for Material and Nanosciences and/or of the research area High Performance Computing (HPC).	2	2.5
	Total	2	2.5
	Objective: By participating in the lectures, students become familiar with current research topics of external experts and experience how current issues are presented and discussed on a scientific level. Through their contact with guest professors, students become acquainted with the scientific community.		
	Prerequisites: none		

4.	Compulsory Module: Generic Skills	h	ECTS-Credits
	Selection of suitable courses equal to 5 ECTS-Credits whose learning objectives include general, subject-specific competences. One course can be chosen from the field of "Equality and Gender".	-	5
	Total	-	5
	Objective: After the successful completion of this module, students possess subject- specific and interdisciplinary competences relevant for a successful career as an independent scientist in an academic, industrial or public environment.		
	Prerequisites: none		

5.	Compulsory Module: Doctoral Thesis Defense (Rigorousum)	h	ECTS-Credits
	Final oral dissertation defense in front of an examination board.	-	5
	Total	-	5
	Objective: Presentation, reflection on, and analysis of the dissertation results in the overall context of the doctoral study programme; the focus is on summarizing and explaining results of the research project, on presenting the increase in knowledge for the discipline, and on demonstrating evaluation and method competences as well as presenting the results.		
	Prerequisites: positive completion of all other modules as well as the dissertation		

§ 7 Dissertation

- (1) In the course of the Doctoral Programme Chemistry, a dissertation equaling 150 ECTS-Credits has to be written. The dissertation is a piece of scientific work on the highest-level which serves to prove the student's ability to cope with scientific questions in an independent way.
- (2) The dissertation topic must be chosen from the field of chemistry or be closely related to chemistry.
- (3) The student has to nominate a team of supervisors, comprised of at least two supervisors (dissertation committee). One of the supervisors (holder of a "Venia docendi", a university teaching authorization) is named as responsible main supervisor. With the exception of the main supervisor, supervisors can also come from subject-related fields. In exceptional cases only one supervisor can be nominated.
- (4) Prior to beginning the work, the student has to communicate the dissertation topic and the names of the supervisors to the Director of Studies in writing. Topic and supervisors are considered as accepted, if the Director of Studies does not veto them by means of a decree within one month after the receipt of the proposal.
- (5) The dissertation may be submitted as a monograph or may consist of thematically and/or methodically related articles. In this case, a minimum of three publications in international journals must be submitted where the student is the first author; the publications must either have been published or at least been accepted for publication. If the articles were written by several authors, the student's own contribution must be clearly shown and accounted for and added to the dissertation. Additionally, the student has to write an extensive summary of the subject area, the methods employed, and the results he/she has obtained. In doing so, the student must refer to the articles already published and included in the dissertation. Furthermore, the scientific work has to be summarized and reflected on intensively, taking into consideration the current state of research in the area of the dissertation; also, a preview has to be given of the future scientific and methodical development of the elaborated topic.

§ 8 Examination regulations

- (1) The evaluation of Modules 1 and 4 is based on course examinations.
 1. Lectures are evaluated by means of a single exam at the end of the course. The lecturer is required to communicate evaluation methods and criteria (oral and/or written) before the course starts.
 2. The evaluation of courses with continuous performance assessment is based on the student's regular, written and/or oral and/or practical/experimental contributions. The lecturer is required to communicate evaluation methods and criteria before the course starts.
- (2) Modules 2 and 3 are evaluated by the main supervisor on the basis of a performance report created by the student. A positive grade has to read "participated with success"; a negative grade has to read "participated without success".
- (3) Module 5 "Doctoral Thesis Defense" is evaluated by an oral examination in front of an examination board consisting of three examiners

§ 9 Academic degree

Graduates of the Doctoral Programme Chemistry are awarded the academic degree of "Doctor of the Natural Sciences" or "Doctor rerum naturalium" in Latin, or "Dr. rer. nat.", in brief.

§ 10 Coming into force

- (1) This curriculum comes into force on 1 October 2009.
- (2) The modification of the curriculum in the version of the University of Innsbruck Bulletin of 4 February 2015, Issue 13, No. 166 comes into force on 1 October 2015 and is to be applied to all students.

Equivalence List – Doctoral Programme Chemistry

- (1) Positively assessed exams, taken as part of the Doctoral Programme Chemistry at the University of Innsbruck (curriculum published in the version of the University of Innsbruck Bulletin from 20 February 2009, Issue 27, No 149) will be recognised as equal towards the exams of the curriculum published in the version of the University of Innsbruck Bulletin from 4 February 2015, Issue 13, No 166 as follows:

Curriculum published in the version of the University of Innsbruck Bulletin from 20 February 2009, Issue 27, No 149		Curriculum published in the version of the University of Innsbruck Bulletin from 4 February 2015, Issue 13, No 166	
§6.1	Individual successfully completed course examinations of the module Scientific Fundamentals/Core Skills for the Dissertations Topic	§6.1	Compulsory Module Scientific Fundamentals/Core Skills for the Dissertations Topic
§6.3a	Special Field Seminar I (SE 2 SSt/1,5 ECTS-Credits)	§6.2a	Special Field Seminar I (SE 2 h /2 ECTS-Credits)
§6.3b	Special Field Seminar II (SE 2 SSt/1,5 ECTS-Credits)	§6.2b	Special Field Seminar II (SE 2 h /2 ECTS- Credits)
§6.3c	Special Field Seminar III (SE 2 SSt/1,5 ECTS-Credits)	§6.2c	Special Field Seminar III (SE 2 h /2 ECTS- Credits)
§6.3d	Special Field Seminar IV (SE 2 SSt/1,5 ECTS-Credits)	§6.2d	Special Field Seminar IV (SE 2 h /2 ECTS- Credits)
§6.3e	Special Field Seminar V (SE 2 SSt/1,5 ECTS-Credits)	§6.2e	Special Field Seminar V (SE 2 h/2 ECTS- Credits)
§6.4	Lecture Series (KU 2/2.5 ECTS-Credits)	§6.3	Lecture Series (SE 2/ 2.5 ECTS-Credits)
§6.6	Individual successfully completed course examinations of the module Generic Skills	§6.4	Compulsory Module Generic Skills in the corresponding amount
§6.7	Compulsory Module Doctoral Thesis Defense (5 ECTS- Credits)	§6.5	Compulsory Module Doctoral Thesis Defense (5 ECTS- Credits)

- (2) Individual cases, where this regulation does not apply, will be decided in order that no disadvantage shall arise for the student due to the modification.