

A Short Guide to the Doctorate Course of Studies

The doctorate course of studies (*Promotionsstudiengang*) represents the core of the faculty-wide Graduate School of Chemistry and Biochemistry (GSCB). It builds up on the faculty's two-tiered B.Sc./M.Sc. programmes in chemistry and biochemistry and consists of a 2-semester preparatory course and a 6-semester research course of studies. The preparatory course is primarily designed for students holding an excellent B.Sc. degree, who intend to start their doctorate studies without a M.Sc. It creates the necessary base for independent scientific work in subsequent research studies. Its curriculum is closely related to that of the Master programme. Students holding a Diploma or a Master's degree are usually admitted directly to the research course of studies. Details on the academic admission requirements to the doctorate course of studies are stated in both the study and examination regulations for the doctorate course of studies.

The key features of classes in the research course of studies are described in the following. **Additional information and individual study counselling is given by the Graduate School (www.ruhr-uni-bochum.de/gscb).**

Classes in the research course of studies

The 6-semester research course of studies replaces the traditional German "*Promotion*". Apart from independent scientific work, which still forms the main part of the doctorate studies, the following classes are compulsory:

- (A) Interdisciplinary Lecture Programme
- (B) Literature and Methodology Seminar
- (C) Modern Aspects of Chemistry and Biochemistry
- (D) Scientific Communication
- (E) Doctoral-Research Seminar and Workshops
- (F) Project-development and -applications
- (G) Subsidiary Subject Lecture I and II

Achievement/participation certificates (*Leistungs-/Teilnahmenachweise*) are normally issued by the research supervisor (*Doktorvater*) on the course completion form. The suggested chronological sequence for the compulsory classes is listed in study regulations for the doctorate course of studies. In addition to the compulsory classes there is a series of special lectures, seminars and exercises on selected topics in chemistry and biochemistry. These classes are listed in the university's lecture timetable under *Fakultät für Chemie: Promotionsstudiengang Chemie/Biochemie* (Graduate School of Chemistry and Biochemistry).

Classes and examinations in the doctorate course of studies including dissertation and disputation may be held in German or English. To improve both the professional and the social integration of foreign students, the Graduate School recommends accompanying German courses.

(A) Interdisciplinary Lecture Programme

This is a joint event of the Society of German Chemists (GDCh), the Society of Biochemistry and Molecular Biology (GBM) and the Graduate School of Chemistry and Biochemistry (GSCB). Selected lectures on current topics in Chemistry and Biochemistry communicate various interdisciplinary aspects of the faculty's research focus 'Molecular Structure', 'Materials' and 'Biosciences'. The objective of the lecture programme is to present a broad overview of modern-day chemistry and biochemistry and open the way for the extension of scientific knowledge by means of self-study.

Regular participation in the lecture programme covering at least four semesters will be attested by the supervisor. Titles of eight lectures in total are to be stated on the course completion form. The contents of these lectures are relevant to the final doctorate examination.

(B) Literature- and Methodology Seminar

These are in particular internal research group seminars focussing on specialised methods applied in scientific research. The students will learn to deal with complex scientific issues independently and to report on them properly, as well as acquiring the ability to lead critical scientific discussions. Seminars of this type held at the Max-Planck-Institutes are fully recognized by the examination office of the Faculty of Chemistry.

Two achievement certificates have to be obtained by active presentation, *i.e.* talks.

(C) Modern Aspects of Chemistry and Biochemistry (

This area covers inter-departmental colloquia as well as seminars of Special Research Fields (*SFBs*). The aim of these events is the communication of latest developments and methods in chemistry and biochemistry. The scientific perspective of individual disciplines, such as inorganic chemistry, analytical chemistry, organic chemistry, physical chemistry, technical chemistry, theoretical chemistry and biochemistry is supplemented by issues from other thematically connected research disciplines. Seminars of this type held at the Max-Planck-Institutes are fully recognized by the examination office of the Faculty of Chemistry.

Regular participation in these lectures covering at least two semesters will be attested by the supervisor on the completion form.

(D) Scientific Communication

This 3-day workshop is held in English and teaches the most important methods of scientific communication: documentation of obtained results in research reports and scientific publications as well as their presentation in form of a poster or as a talk. Practical exercises support the acquisition of professional presentation skills. Organisation and registration is

conducted by the RUB Research School. Courses and workshops of this type held at the Max-Planck-Institutes are fully recognized by the examination office of the Faculty of Chemistry.

Certificates are issued by the RUB Research School and attestation is given by the GSCB or the supervisor on the completion form.

(E) Doctoral Research Seminars and Workshops

These specific seminars offer doctoral students a forum to present their research work in form of seminar lectures or poster presentations. They are intended to offer students the opportunity to present and defend the obtained knowledge before an informed audience. The two obligatory achievement certificates can be obtained by an own (active) presentation at one of the following events:

- In (C) listed events 'Modern Aspects of Chemistry and Biochemistry'
- Poster- or oral presentation on a conference

The achievement certificate **cannot** be obtained by a presentation in a research group seminar. Attestation is given by the Graduate School or the supervisor on the completion form.

(F) Project-planning and -execution

The course objective is the composition of a progress-report after the first year as well as a project plan for the following 2 years of study. The documents are discussed individually or in small groups with the professor. Progress report and project plan should be of the order of 10 pages each. Both documents are to be presented upon registration for the doctorate examination.

Attestation is given by the supervising professor on the completion form.

(G) Subsidiary Subject Lecture and Exercises

The doctorate subsidiary lecture intends to communicate in-depth specialist knowledge beyond the research topic, in particular in the fields of inorganic chemistry, analytical chemistry, organic chemistry, physical chemistry, technical chemistry or theoretical chemistry or various sub-disciplines in biochemistry. The objective is to create more broadly-based scientific knowledge and to prevent too strong a specialization during the doctorate phase. The subsidiary subject lecture may be chosen from the lectures for the Master's programme in chemistry or biochemistry. The chosen subject area must not have too close an affinity to the research topic of the forthcoming doctorate thesis. Suitable classes offered by other faculties may be chosen only upon written application to the examination office.

The achievement certificate is graded and consists of a 30-45 minute oral examination. Attestation is given by the examiner on the completion form.