



Please note:

**The legally binding version of
these regulations can only be
found in our Official Notices.**

A neural machine translation service was used for the translation of these regulations. We do not guarantee the quality and accuracy of the translation.

Doctoral degree regulations of the Department of Life Sciences and Health Technologies of the Graduate School for Applied Research in North Rhine-Westphalia

from 06.06.2023

Based on § 67b (3) and § 67 (3) of the Higher Education Act of the State of North Rhine-Westphalia (Hochschulgesetz – HG) of September 16, 2014, as amended by the Act Amending the Higher Education Act of July 12, 2019 (GV. NRW. p. 377) and the Framework Doctoral degree regulations of the Graduate School for Applied Research in North Rhine-Westphalia of January 31, 2023 (RPO), the Department council of the Department of Life Sciences and Health Technologies has issued the following doctoral degree regulations:

Contents

- § 1 Scope of application
- § 2 Conferral of doctoral degrees
- § 3 Purpose and form of the doctorate
- § 4 Doctoral examining committee
- § 5 Admission requirements
- § 6 Acceptance as a doctoral candidate
- § 7 Supervision
- § 8 Opening of the doctoral procedure
- § 9 Assessment and inspection
- § 10 Examination board
- § 11 Dissertation
- § 12 Disputation
- § 13 Overall grade of the doctorate
- § 14 Completion of the doctorate and certificate
- § 15 Publication of the dissertation
- § 16 Withdrawal from the defense
- § 17 Deception and revocation of the doctorate
- § 18 Inspection
- § 19 Appeal against decisions in the doctoral procedure
- § 20 Protection periods
- § 21 Compensation for disadvantages
- § 22 Retention of examination documents
- § 23 Doctorate in joint supervision with universities entitled to award doctorates and joint awarding of degrees
- § 24 Cooperative doctorates with universities not authorized to award doctorates
- § 25 Entry into force

§ 1 Scope of application

(1) These doctoral degree regulations apply to all doctoral procedures carried out in the Department of Life Sciences and Health Technologies of the Graduate School for Applied Research in North Rhine-Westphalia.¹ Insofar as no provisions have been made in these doctoral degree regulations, the corresponding rules of the framework doctoral degree regulations of the Graduate School for Applied Research in North Rhine-Westphalia apply.

(2) In the case of interdepartmental doctoral topics, a department is appointed whose doctoral degree regulations are used for the procedure. The supervisors, reviewers and members of the examination committee are appointed in such a way that the departments involved are represented accordingly.

§ 2 Conferral of doctoral degrees

(1) After passing the doctoral examination, the department awards the following academic degree in the Life Sciences and Health Technologies doctoral program

1. Doktor der Ingenieurwissenschaften (Doktor-Ingenieur – Dr.-Ing.), or Doktorin der Ingenieurwissenschaften (Doktor-Ingenieurin – Dr.-Ing.) or Doktor*in der Ingenieurwissenschaften (Doktor-Ingenieur*in – Dr.-Ing.) or
2. Doktor der Naturwissenschaften (Doctor rerum naturalium – Dr. rer. nat.), or Doktorin der Naturwissenschaften (Doctor rerum naturalium – Dr. rer. nat.) or Doktor*in der Naturwissenschaften (Doctor rerum naturalium – Dr. rer. nat.).

(2) The academic degree of Doktor der Ingenieurwissenschaften (Doktor-Ingenieur – Dr.-Ing.), Doktorin der Ingenieurwissenschaften (Doktor-Ingenieurin – Dr.-Ing.) or Doktor*in der Ingenieurwissenschaften (Doktor-Ingenieur*in – Dr.-Ing.) is awarded if the dissertation is predominantly of an engineering nature; the academic degree of Doktor der Naturwissenschaften (Doctor rerum naturalium – Dr. rer. nat.), Doktorin der Naturwissenschaften (Doctor rerum naturalium – Dr. rer. nat.) or Doktor*in der Naturwissenschaften (Doctor rerum naturalium – Dr. rer. nat.) is awarded if the dissertation is predominantly of a scientific nature. The decision is made by the responsible doctoral examining committee.

§ 3 Purpose and form of the doctorate

(1) The doctorate serves as proof of the ability to carry out in-depth academic work in one of the department's specialist areas. The doctorate is based on independent academic work (dissertation) and an oral examination (disputation).

(2) The doctorate takes place within the framework of the doctoral program specified in § 2 (1). The required achievements must be acquired as part of the framework and

¹ The provisions in these regulations do not apply to cooperative doctoral procedures in which the procedure is conducted exclusively via the doctoral right of the university or other universities entitled to award doctorates.

departmental doctoral program. These are part of the requirements for admission to the doctoral procedure.

(3) Doctorates can also be carried out across departments.

(4) The duration of the doctorate should not exceed five years. In justified cases, the doctoral examining committee may extend the deadline by a maximum of two years upon application submitted before the deadline expires; the application must be accompanied by a justification and a statement from the supervisors responsible for the subject. Upon expiry of the maximum permissible duration of the doctorate, acceptance for the doctorate expires, unless the doctoral procedure has already been initiated. Leave of absence and periods of protection in accordance with § 20 are not counted towards the duration of the doctorate.

§ 4 Doctoral examining committee

The composition, responsibilities and working methods of the doctoral examining committee are regulated in § 4 of the RPO.

§ 5 Admission requirements

(1) According to HG § 67 (4), access to the doctoral procedure is granted to those who hold

- a) a degree following a relevant university course of study with a general standard period of study of at least eight semesters, for which a degree other than "Bachelor" is awarded, or
- b) a degree after a relevant university degree with a general standard period of study of at least six semesters and subsequent appropriate studies in the doctoral subjects in preparation for the doctorate or
- c) a degree from a Master's degree program within the meaning of HG § 61 (2) sentence 2

which was obtained in a mathematical or scientific subject for the award of the Dr. rer. nat. or in an engineering subject for the award of the Dr.-Ing. The doctoral examining committee decides on exceptions.

If the qualified degree according to sentence 1 a) to c) was not obtained in one of the subjects listed there, the doctoral examining committee may exceptionally admit the candidate to doctoral studies, provided that the other admission requirements are met:

- d) has not already been accepted as a doctoral candidate or admitted to doctoral studies in the same academic subject at another faculty or university and has not already passed a corresponding doctoral examination in the same academic subject at a university and
- e) is not unworthy of holding a doctoral degree within the meaning of the statutory provisions.

(2) If admission to the doctoral procedure is granted in accordance with § 5 (1) b), the doctoral examining committee shall determine the modules and examinations to be completed as part of the preparatory studies for the doctorate, taking into account the completed degree and the envisaged dissertation topic. The required scope of performance may not exceed the number of ECTS credits required for a consecutive Master's degree. The modules and examinations are taken from the relevant Master's degree programs of the sponsoring universities. The pre-doctoral studies have been passed if all modules and examinations to be taken have been completed. The requirements must be fulfilled by the start of the doctoral procedure, unless another deadline is specified.

§ 6 Acceptance as a doctoral candidate

(1) Acceptance as a doctoral candidate is regulated in § 6 of the RPO.

(2) Acceptance is initially limited to five years and can be extended twice by one year each upon application, provided that the supervisors of the thesis confirm that the doctoral project can be successfully completed.

§ 7 Supervision

(1) Supervision is regulated in § 7 of the RPO.

(2) The supervision agreement only becomes effective upon acceptance as a doctoral candidate.

§ 8 Opening of the doctoral procedure

The opening of the doctoral procedure is regulated in § 8 of the RPO.

§ 9 Assessment and inspection

(1) The appointment and exclusion of reviewers is regulated in § 9 of the RPO.

(2) In the case of interdisciplinary doctoral projects, the reviewers should be appointed in such a way that the disciplines involved are represented.

(3) The expert opinion can be submitted in electronic form.

(4) In addition to the persons named in RPO § 11 (9), the doctoral candidate may also inspect the expert reports on display in the department. The doctoral candidate is obliged to maintain confidentiality with regard to the contents of the reports.

(5) The deadline for submitting the dissertation and the reviews to the department in accordance with § 11 (9) of the RPO may be shortened at the request of the doctoral candidate if there are serious reasons for doing so.

§ 10 Examination board

- (1) The composition and working methods of the examination board are regulated in § 10 of the RPO.
- (2) In the case of interdisciplinary doctoral projects, the examiners should be appointed in such a way that the disciplines involved are represented.

§ 11 Dissertation

- (1) Writing and assessment of the dissertation are regulated in § 11 of the RPO.
- (2) The dissertation must be written in German or English.
- (3) In the case of a cumulative dissertation, at least two of the three original papers must have been accepted by peer-reviewed, internationally recognized publication bodies at the time of submission of the dissertation. All three publications must have a first authorship, which may only be shared in one case.

§ 12 Disputation

The conduct and assessment of the disputation are regulated in § 12 of the RPO.

§ 13 Overall grade of the doctorate

The determination of the overall grade of the doctorate is regulated in § 13 of the RPO.

§ 14 Completion of the doctorate and certificate

The completion of the doctorate is regulated in § 14 of the RPO.

§ 15 Publication of the dissertation

The publication of the dissertation is regulated in § 15 of the RPO.

§ 16 Withdrawal from the defense

Withdrawal from the defense is regulated in § 16 of the RPO.

§ 17 Deception and revocation of the doctorate

The procedure in the event of cheating and withdrawal of the doctorate is regulated in § 17 of the RPO.

§ 18 Inspection

Inspection is regulated in § 18 of the RPO.

§ 19 Appeal against decisions in the doctoral procedure

Appeals against decisions in the doctoral procedure are regulated in § 19 of the RPO.

§ 20 Protection periods

The protection periods are regulated in § 20 of the RPO.

§ 21 Compensation for disadvantages

Compensation for disadvantages is regulated in § 21 of the RPO.

§ 22 Retention of examination documents

The storage of examination documents is regulated in § 22 of the RPO.

§ 23 Doctorate in joint supervision with universities entitled to award doctorates and joint awarding of degrees

Doctorates in joint supervision with universities entitled to award doctorates and joint degree conferral are regulated in § 23 of the RPO.

§ 24 Cooperative doctorates with universities not authorized to award doctorates

Cooperative doctorates with universities that are not authorized to award doctorates are regulated in § 24 of the RPO.

§ 25 Entry into force

This regulation comes into force on the day after its publication in the Official Notices of the Graduate School for Applied Research in NRW.

Bielefeld, 07.06.2023

The Chairman of the Department Council

signed *Patel*

(Prof. Dr. Anant Patel)

Attachment

Doctoral program of the Department of Life Sciences and Health Technologies

Non-official version

Annex: Doctoral program of the Department of Life Sciences and Health Technologies

The doctoral program in Life Sciences and Health Technologies is oriented towards the life sciences as the leading science of the 21st century and covers all the subject areas represented by the professors in this department and related disciplines in this field.

The doctoral program is aimed at graduates from mathematics, computer science, natural sciences and technology (STEM) and engineering disciplines.

1 Aim of the program

The aim of the program is to produce outstanding and independent scientists who have an in-depth insight into the structures and processes of living organisms or in which living organisms are involved. This also includes an in-depth understanding of the materials, methods, procedures and processes that are used today in the life sciences in all their diversity. Depending on the research topic, graduates of the program have independent scientific expertise in the following areas

- Biomedicine
- Biogenic resources in value networks
- Biomaterials
- Computational Life Sciences

Doctoral candidates on the program also acquire additional interdisciplinary skills, which may include the ability to communicate with non-specialist audiences, didactic skills, leadership skills, experience in project management and working with international teams, and business management skills.

At the end of their doctorate, graduates have thus acquired additional specialist and interdisciplinary qualifications in addition to an in-depth examination of their research topic. This enables them to transfer and apply their life science expertise independently in everyday life and industry and to take up management positions in industry, research and administration.

2 Doctoral degrees

The research carried out by members of the department and its sub-disciplines ties in with the natural sciences and engineering in a variety of ways by drawing on and further developing fundamental theories, concepts, materials, methods and processes or techniques. This results in the award of doctoral degrees for the department at the Graduate School NRW:

- Dr. rer. nat.
- Dr.-Ing.

3 Structure/content of the program

The three-year doctoral program in Life Sciences and Health Technologies includes the mandatory completion of the following requirements. The program consists of research focus-specific and cross-research focus events. In the research focus-specific courses, Doctoral candidates take an in-depth and critical look at the research focuses dealt with in the department.

In the interdisciplinary courses, Doctoral candidates acquire sound knowledge and skills in interdisciplinary ('general scientific') topics and methods. This includes for example knowledge of good scientific practice and general knowledge of methods, such as biostatistical procedures, as well as further training in personnel management and communication. This doctoral program also provides the opportunity to network and discuss one's own research with the specialist community.

The courses are offered in German or English and as regular courses during the semester, block courses or online courses.

3.1 Mandatory area

The compulsory area is essentially based on the requirements of the framework doctoral program of the Graduate School NRW. See Table 1 for a schematic overview of the work to be completed in the compulsory area.

The following courses are compulsory:

a) Event on good scientific practice

This course provides basic knowledge of scientific ethics in relation to (own) scientific work. If possible, it should be completed at the beginning of the doctoral process.

b) Event on ethics and responsibility in society

This course provides basic knowledge of scientific ethics in relation to the relationship between science and society and the students' own scientific activities in this context.

c) Written progress reports and discussions, updating the timetable and work plan of the supervision agreement

Doctoral candidates prepare an annual written report on the progress of their doctoral project and discuss it with their supervisory team. The time and work plan set out in the supervision agreement is reviewed and modified or updated if necessary.

d) Lecture series on life sciences and health technologies

The lecture series Life Sciences and Health Technologies (seven events) is offered in German or English and focuses on the following subject areas:

- *Biomedicine*
- *Biogenic resources in value creation networks*
- *Biomaterials*
- *Computational Life Sciences*

Here, students attend seven different lectures from a pool of lectures (one double hour each) given by professorial members, associate professors or guests. The content of all lectures is based on the life sciences and is recruited from the subjects represented by the professorial members.

The lecture series thus spans the various research topics within the doctoral program and provides Doctoral candidates with the 'inner context' of the doctoral program. The individual lectures broaden knowledge of materials, methods, devices, processes and mechanisms in the life sciences and place them in the context of the major challenges facing society. The format of the individual sessions can vary.

Doctoral candidates must successfully complete the lecture series once. Attendance in the first year is recommended.

e) Methodological qualification course: Selected methods of life sciences and health technologies

Each doctoral candidate is required to attend a methods workshop at least once during the doctoral phase, the focus of which is determined in advance with the supervisory team. In the methods workshops, Doctoral candidates acquire special knowledge of methods, equipment and procedures that they will use in the course of their doctorate. They also have the opportunity to discuss problems with proven experts in the application of a method, device or procedure that arise during their doctorate.

They attend methodological training courses in the following areas of life sciences and health technologies and other methods relevant to the doctorate, e.g:

- Methods of instrumental analysis (e.g. chromatographic, spectrometric and spectroscopic methods)
- Methods in microscopy (light/fluorescence microscopy, confocal laser microscopy, etc.)
- Methods in bioanalytics (e.g. qPCR, capillary electrophoresis/sequencing, flow cytometry, etc.)
- Methods for product synthesis and processing (e.g. biocatalytic and chemical synthesis, microbial fermentation, protein expression and protein purification)
- Genome editing technologies (e.g. TALEN, CRISPR/Cas and zinc finger nucleases)
- Methods of general and advanced statistics and bio-statistics

- Methods for image analysis, data evaluation and visualization; simple methods for modelling and simulation
- Introduction to Python, GNU Octave, Matlab

The method workshops introduce the safe use of a method, increase the reproducibility of results and enable new insights and the answering of questions that can be addressed using this method. They thus ensure the scientific quality of the doctoral projects.

The methods workshop must be successfully completed once and should be attended in the first year.

f) Doctoral candidate colloquium

The colloquium gives Doctoral candidates the opportunity to network and discuss their own research with each other and with the specialist community.

It is compulsory to present your own research twice in the colloquium of the doctoral program in different semesters. Participation in the first and second year is recommended.

g) Presentation of your own research at an external scientific conference

The presentation of one's own research at an external scientific conference serves to discuss the doctoral project and to introduce the doctoral candidate to the national or international scientific community. The selection of the conference and the time of the presentation is made in consultation with the supervisors. In the compulsory part of the doctoral program, students must present their own research once at an external scientific conference.

Table 1: Overview of the mandatory area

Event	Explanations
1 x event on <i>good scientific practice</i>	The event should be attended at the beginning if possible.
1 x event on <i>ethics and responsibility in society</i>	
1 x Methods workshop <i>Selected methods of life sciences and health technologies</i>	The selection is made in consultation with the support team.
1 x 7 sessions of the lecture series <i>Life sciences and health technologies</i>	
2 x presentation of own research as part of the department's doctoral colloquium	In different semesters
1 x presentation of own research at an external conference	
Annual: Written progress report and progress meeting	The written progress reports must be submitted annually; the progress meetings also take place annually.

3.2 Compulsory elective area

In the compulsory elective area, Doctoral candidates can expand their profile according to their own personal interests and needs. During the course of the doctorate, a total of three different achievements must be completed. These can be chosen freely from the areas of science, transfer and teaching. The selection of achievements is determined together with the supervisory team in the annual progress meeting in order to sharpen the doctoral candidate's individual profile.

The following table contains examples of which achievements are possible in the respective areas. In individual cases, further achievements may be recognized after prior consultation with the supervisory team and the doctoral examining committee.

Science	
Article in a recognized journal (peer-reviewed, impact factor, relevance for subject)	Reviews are also recognized
Publication in other bodies (e.g. conference proceedings)	
Participation in a national or international conference with own contribution (poster, lecture or competitive demonstration)	In addition to conference participation from the mandatory area.
Participation in a summer school or similar.	
Research stay with a connection to a research institution or university (at least 2 weeks) and submission of a report on the results	
Participation in a methods workshop relevant to the topic of the doctorate.	In addition to the event from the compulsory area.
Participation in an interdisciplinary Qualification workshop	In addition to the events from the mandatory area.
Support with the acquisition of third-party funding	
Co-organization of a scientific event	
Activities in academic self-administration and in committee work (e.g. spokesperson of doctoral candidates, membership of the Department Council or College Senate of the PK NRW, etc.)	Participation in committees at PK NRW as well as at your own university is possible.
Participation in a language course	After successful participation, a new language level according to the Common European Framework of Reference for Languages (GER) must be reached.
Transfer	
Application for a patent	
Founding a start-up	
Internship in an area that is relevant to your future career (at least 2 weeks)	
Contributing to the content of an information event or workshop for companies, the public sector or organizations	

Teaching	
Participation in a university didactics workshop	
Implementation of a course (practical course, tutorial etc.)	
Co-supervision of a Bachelor's or Master's thesis	

Non-official version