

# NEWSLETTER

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## Curriculum

for the doctoral program in  
natural sciences

at the Faculty of Natural Sciences  
Doctoral Program in Natural Sciences  
at the Faculty of Natural Sciences

Curriculum 2024

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Basic direction: Announcement of information in accordance with § 20 para. 6 UG as amended.

**Curriculum for the doctoral program  
in natural sciences at the  
Faculty of Natural Sciences**



**Doctoral Program in Natural Sciences at the Faculty of Natural  
Sciences**

The legal basis for doctoral studies in natural sciences at the Faculty of Natural Sciences is the Universities Act (UG) and the statutes of the Karl-Franzens-Universität Graz.

On 26.06.2024, the Senate issued the following curriculum for the doctoral degree program in Natural Sciences in accordance with Section 25(1)(10a) UG.

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## **§ 1 Objectives and qualification profile**

### **(1) Subject of the study program**

The purpose of the doctoral program in Natural Sciences is to impart the ability to carry out independent scientific work in addition to academic professional training and to lead students to the forefront of current research in one of the specialist areas of competence of the Faculty of Natural Sciences at the University of Graz by independently achieving new findings. The doctoral program thus serves to train young scientists in the field of natural sciences.

### **(2) Qualification profile and skills**

Doctoral students acquire the qualification for scientific work in a research area of the natural sciences through comprehensive and in-depth training. They are enabled to translate current scientific issues into research projects and to contribute to the advancement of knowledge in their subject at an international level through independent research. They also acquire the prerequisites for critical analysis, evaluation and synthesis of complex ideas in the respective subject area. Graduates are qualified as junior staff for scientific research in university and non-university areas and are thus able to contribute to the development of the knowledge society within academic and professional contexts.

### **(3) Need and relevance of the degree program for science and the job market**

Top performance in the STEM subjects is essential for Austria as a center of knowledge and business, which is reflected in the excellent career prospects for graduates of these subjects. With the doctoral program at the Faculty of Natural Sciences, doctoral students will continue to contribute to Austria and Europe at a high professional level in the future, and they will also be qualified for leadership roles in both academic and business environments.

## **§ 2 Admission**

### **(1) Admission requirements**

The prerequisite for admission to the doctoral program in Natural Sciences at the Faculty of Natural Sciences is

1. the completion of a Master's degree course of at least 60 ECTS credits or a Diploma degree course of at least 240 ECTS credits or another degree course of at least the same higher education level at a recognized domestic or foreign post-secondary educational institution in the field of natural sciences or in a field that is meaningfully related to natural sciences.
2. fulfillment of the qualitative admission requirements pursuant to para. 3,
3. the knowledge of the English or German language required for the successful completion of the degree program according to para. 4,
4. If the requirements according to Z 1 to 3 are not fulfilled and cannot be met by taking supplementary examinations according to para. 2, admission is not possible.

### **(2) Supplementary examinations**

Supplementary examinations may be prescribed to compensate for significant subject-related differences to the studies specified in para. 1 no. 1 or to compensate for significant subject-related differences that are necessary for the dissertation project.

### **(3) Qualitative admission requirements**

Admission to the doctoral program in natural sciences requires the fulfillment of the following qualitative admission requirements. The fulfillment of the criteria is checked by the admission committee of the respective doctoral school as part of the admission procedure:

1. A short synopsis of no more than one page contains a research outline on the topic of the planned dissertation and complies with scientific quality standards and good scientific practice.
2. Excellent scientific knowledge in the field of research.
3. The provisional timetable indicates that the research project is realistically planned.
4. The research project is meaningfully related to a subject at the Faculty of Natural Sciences or can be assigned to a subject area of the doctoral school named in the application for admission.
5. Successful completion of an admissions interview with the admissions committee, which can be conducted in person or online. The admission interview consists of a presentation by the applicant, a subsequent discussion and an interview. The doctoral schools can specify in the guidelines whether the admission interview can be replaced by a hearing that has already taken place.

### **(4) Language**

As a prerequisite for admission to the degree program, students must prove that they have the necessary knowledge of English or German to successfully complete their studies. The required level of English is B1 according to the Common European Framework of Reference for Languages. In any case, the required knowledge of English is deemed to have been achieved by passing a school-leaving examination in English. In countries that do not require a school-leaving examination, proof of English language proficiency can also be provided by a secondary school leaving certificate. Further language certificates for German and English must be specified in a regulation issued by the Rectorate.

### **(5) Admissions committee**

1. The admissions committee consists of three persons. The (vice) dean of studies responsible for the doctoral program, the head of the doctoral school and the proposed first supervisor are in any case members of the admissions committee. If one of these persons holds two of the functions listed, his/her deputy must participate in the admissions committee as a substitute.
2. The (Vice) Dean of Studies may delegate his/her vote to a habilitated person of the faculty and the Head of the Doctoral School may delegate his/her vote to a member of the Doctoral School.
3. At least two members of the admissions committee must be present at the admissions interview.
4. On the basis of the criteria set out in paragraphs 1 to 4, the admissions committee examines whether the applicant has a suitable previous degree program for the doctorate and whether the qualitative admission requirements are met and, on this basis, makes a recommendation to the Rectorate by majority decision on the admission decision and any supplementary examinations to be taken by the applicant.
5. If the dissertation project requires the use of financial or material resources of an academic unit, admission may only be recommended if the head of this unit has been informed and does not prohibit it due to a significant impairment of teaching and research activities.
6. In the event that a rejection of the application for admission or the imposition of supplementary examinations is recommended, the admissions committee must justify why the admission requirements are not or not fully met.
7. The admissions committee must make a decision within 4 weeks of the admissions interview.

## (6) Application documents

The following application documents must be submitted by the applicant for admission when applying for admission:

- Registration for the doctoral program of the Faculty of Natural Sciences and supervision agreement.
- Academic curriculum vitae with proof (degree certificates) of previous studies/research or study specializations.
- Proof of the required language skills.
- A short synopsis of no more than one page stating the preliminary topic of the planned dissertation and outlining the content of the planned research work.

## § 3 Structure of the degree program

### (1) Duration and structure

<b>Modules</b>	<b>ECTS</b>
Module A: Specific dissertation module	9
Module B: Dissertation seminars of the relevant doctoral school	9
Module C: Scientific continuing education	6
<i>Total</i>	24
<b>Dissertation</b>	
<b>Defensio</b>	6

The doctoral program has a planned duration of six semesters and is divided into a curricular part (modules), the dissertation and the defense:

Module A contains courses of the respective doctoral school and appropriate courses of the University of Graz at doctoral level. The dissertation seminars in Module B serve to monitor progress in the doctoral program and must be offered at least once a year.

Module C comprises courses at doctoral or Master's level which are to be selected taking into account the thematic connection with the dissertation. In the interests of interdisciplinary training or interdisciplinary reflection, Module C may also include courses in women's and gender studies, ethics, philosophy, philosophy of science or similar relevant fields. The decision on admissibility is the responsibility of the Dean of Studies.

### (2) Doctoral schools

The doctoral program in natural sciences can be completed at the following doctoral schools:

- Biology
- Chemistry
- Earth sciences
- Mathematics and scientific computing
- Molecular biology and biochemistry
- Pharmaceutical Sciences
- Physics
- Psychology

The doctoral schools are obliged to offer a sufficient number of doctoral courses for Module A and Module B.

### **(3) Scientific compensation**

1. After consultation with the first supervisor of the dissertation and with the approval of the Chairperson of the Curricula Commission, courses amounting to a maximum of 9 ECTS credits may be replaced by academic achievements.
2. Scientific achievements include:
  - a. Lecture or poster presentation at an international scientific conference (creditable for modules A, B and C). The following count
    - (1) Lectures with at least 20 minutes presentation time 2 ECTS,
    - (2) Lectures with at least 15 and less than 20 minutes presentation time 1.5 ECTS,
    - (3) Posters or lectures with at least 10 and less than 15 minutes of presentation time 1 ECTS.
  - b. The completion of dedicated study and research programmes at other national and international research institutions is recognized as a substitute achievement. This includes, in particular, academic seminars or workshops (summer schools) in the corresponding number of ECTS credits/hours (creditable for modules A and C).

## **§ 4 Dissertation**

### **(1) Requirements**

A dissertation must be written. In the dissertation, the student must demonstrate that he/she has acquired the ability to independently solve problems of current scientific research and has achieved a new result, over and above the requirements for a Master's thesis/diploma thesis. The dissertation is an independent piece of original scientific work that has been independently prepared and written by the student.

The dissertation can also be based on publications that have already appeared or been accepted for publication (cumulative dissertation).

The dissertation must describe the new scientific findings of the work carried out by the doctoral candidate and present them in the context of the current state of scientific research in the relevant subject area. The investigations carried out must be documented and the results presented in a comprehensible form. The style of the dissertation should follow the usual standards in the subject area. In the case of research collaborations, the doctoral candidate's own contribution must be clearly delineated and each participating doctoral candidate must prepare a separate dissertation.

### **(2) Cumulative dissertation**

In the case of a cumulative dissertation, the associated publications must be embedded in an introduction to the research problem and a summary of the results obtained. It must be made sufficiently clear what relevance the dissertation results have in the context of the respective field of research and how they are to be classified within it. For a publication-based dissertation, the following points are to be regarded as minimum criteria, which can be specified in the guidelines of the doctoral school:

1. A publication-based dissertation must have at least two original publications that have appeared in scientific journals or proceedings with a reviewer system or have been accepted or conditionally accepted for publication, see Z 4.b. The publication of the Master's or Diploma thesis cannot be used for the publication-based dissertation.
2. In the case of co-authorships, the doctoral candidate's share must be predominant (50% or more) in at least one of the publications and at least substantial (not less than 30%) in the remaining publications. The doctoral candidate's own contribution to the respective publications must be stated by the doctoral candidate and confirmed by the co-authors. The percentages must be made known to the assessors.

3. Methods, measurement arrangements, evaluations, solution procedures, etc. that are not included or described in the publications must be described in sufficient detail in the descriptive part of a publication-based dissertation, e.g. in the form of appendices.
4. The doctoral school is responsible for the quality of the credited publications and can define specific conditions in a guideline, e.g:
  - a. Request for more than two publications,
  - b. Required first/second authorships of the doctoral candidate,
  - c. Higher percentages regarding predominant and significant own contribution to a publication,
  - d. The possibility that one of at least two publications is still in the second phase of the review process (accepted with revisions) or is in print (in press),
  - e. List of publication organs considered equivalent (journals, peer-reviewed proceedings, newer publication formats).

### **(3) Dissertation topic**

1. The topic of the dissertation must be taken from the research area of the relevant doctoral school of the Faculty of Natural Sciences or be meaningfully related to it.
2. A subsequent change of dissertation topic is possible up to the submission of the dissertation. The admissions committee must be informed of this in writing, stating the reasons for the change. A change of dissertation topic is only possible within the doctoral school with the approval of the admissions committee.

### **(4) Support**

1. The first supervisor may only be a person who fulfills the requirements according to § 39 of the Statutes of the University of Graz.
2. The doctoral candidate has the right to choose an optional co-supervisor. Co-supervisors may also be non-Habilitated doctoral candidates with their own third-party funded project, if this is approved by the responsible Dean of Studies.
3. Furthermore, a mentor is to be appointed who fulfills the requirements according to § 39 of the Statutes of the University of Graz. He/she supports the doctoral candidate and the supervisor with regard to adequate training, career planning and effective supervision and monitors the progress of the dissertation project. The doctoral candidate can contact the mentor at any time in matters of supervision.
4. At the request of the doctoral candidate, the Dean of Studies may approve the appointment of an additional person with a doctorate who is suitable for the subject. In the case of externally funded employment of the student, this collaborating person may be the project leader or another suitable person who does not hold a doctorate and is involved in the project.
5. The first supervisor should be a member of the University of Graz. The other supervisors may also come from another university or institutions of equal rank to the universities.
6. The first supervisor must be chosen from the doctoral school of the dissertation and announced during the admission procedure. All other supervisors may also belong to other academically relevant fields and must also be announced as part of the admission procedure.

## **(5) Appraisal**

1. The completed dissertation must be submitted to the Dean of Studies. At the suggestion of the doctoral candidate, the Dean of Studies must appoint two reviewers who fulfill the requirements in accordance with § 39 of the Statutes, Section Study Law Provisions. The first supervisor may be a reviewer.
2. Reviewers may also come from other universities or institutions of equal rank to the universities; at least one reviewer must come from outside the University of Graz.
3. Reviewers cannot be co-authors of publications in cumulative dissertations at the same time.
4. All reviewers must prepare one review each for the entire dissertation. The acceptance of one or more publications in peer-reviewed journals does not prejudice the decision of the reviewers.

## **§ 5 Defensio**

- (1) The defensio is a public, oral board examination lasting a total of 90 minutes.
- (2) The student is entitled to register for defensio with the Dean of Studies if the following requirements are met:
  1. Completion of the curricular part of the doctoral program according to § 3 and, if applicable, the provision of additional supplementary achievements from conditions within the framework of admission;
  2. the positive assessment of the dissertation.
- (3) The defensio consists of a public presentation and defense of the dissertation, taking into account the expert opinions in the context of a general discussion. The presentation of the dissertation is scheduled for 40 minutes.
- (4) The examination committee is to be put together by the Dean of Studies at the suggestion of the doctoral candidate and announced at least two weeks before the defensio is held. The examination date must be announced publicly at least one week in advance. The examination board for the defense consists of at least 3 persons. The first assessor and the first supervisor are always members of the committee. The second assessor and any other assessors as well as the co-supervisor do not have to be members of the examination board.
- (5) A uniform grade is to be awarded for the Defensio, which also takes into account the overall impression of the examination.

## **§ 6 Overall assessment**

- (1) An overall assessment of the doctoral program must be carried out. For this purpose
  1. the grade from the arithmetic mean of the assessments of the modules in the curricular part according to § 3,
  2. the grade from the arithmetic mean of the assessments of the dissertation and
  3. the grade of the Defensio.
- (2) The overall assessment must be "passed" if each of the three grades is positive, otherwise it must be "failed". It must be "passed with distinction" if the dissertation was assessed as "very good" (1), at least two of the grades are "very good" (1) and the third grade is no worse than "good" (2).



## **§ 7 Academic degree**

Graduates of the doctoral program in natural sciences are awarded the academic degree "Doctor of Natural Sciences", abbreviated to "Dr.rer.nat."

## **§ 8 Entry into force of the curriculum and transitional provisions**

This curriculum comes into force on 01.10.2024. (Curriculum 2024)

- (1) Students of the doctoral program in Natural Sciences at the Faculty of Natural Sciences who are subject to the curriculum in version 19W when this curriculum comes into force on 01.10.2024 are entitled to complete their studies in accordance with the provisions of the curriculum in version 19W within 8 semesters. If the degree program is not completed by 30.09.2028, the students are subject to the curriculum for the doctoral program in natural sciences at the Faculty of Natural Sciences in the currently valid version. Students following the previously valid curriculum are entitled to change to the currently valid curriculum at any time during the admission period.
- (2) Examinations that were completed within the framework of § 4 para. 1 of the curriculum in the 19W version are recognized to the extent of their ECTS credits if they are subject to Curriculum 2024.

The Chairwoman of the  
Senate: Ehrke-Rabel

## Appendix I:



Examination Office of the Faculty of Natural Sciences

[nawi.pruefref@uni-graz.at](mailto:nawi.pruefref@uni-graz.at)

## Registration for the doctoral program at the Faculty of Natural Sciences and supervision agreement

Application for the Doctoral Program of the Faculty of Natural Science and Supervision Agreement

<b>Do not fill in! / Omit this box!</b>	Matriculation number:		
Study code: UB 796 600 _____	Doctoral School:		
Enrollment date:	Conditions: Yes <input type="checkbox"/> No <input type="checkbox"/>	Brief description <input type="checkbox"/>	Work and time schedule <input type="checkbox"/>

Please complete the form in **CAPITAL LETTERS** and **collect the** signatures (marked with red arrows). Please complete the form in **CAPITAL LETTERS** and collect the signatures (marked with **red arrows**).

This application needs to be submitted with an **abstract of the planned doctoral thesis**. This application needs to be submitted with an **abstract** of the planned Doctoral thesis.

Mrs/Ms/Mrs       Mr/Mr

Surname, First name(s)  
Last name, First name(s)

Date of birth (dd.mm.yyyy)

Email address (not student account) Email address (not student account)

Phone number

Doktoratsschule/Doctoral school

Branch of study\*/Branch of study\*

Planned title of the Doctoral thesis  
Planned title of the Doctoral thesis

Preliminary studies qualifying for the doctorate  
Previous studies qualifying for the doctoral program

Name of the university of previous studies  
Name of the University where the previous studies were conducted

With the following signatures, the supervising persons agree with the student on a supervisory relationship in accordance with the statutes, study law provisions, the work plan and timetable as well as the dissertation exposé and the field of study. The supervision agreement is concluded subject to admission to the doctoral program and is valid from the date of admission.

By signing, the supervisor's and the student agree to the conditions of the Supervision Agreement, the Work and time schedule, the abstract to the planned Doctoral thesis, and the branch of study. The Supervision Agreement is valid from the time of enrollment.

\*The correct branch of study can be found on the homepage of the Examination Office:

<https://nawi.uni-graz.at/en/studienservice/studienzweig-fuer-doktoratsstudierende>

\*You can find the correct branch of study on following homepage: <https://nawi.uni-graz.at/en/study-service/branch-of-study>

*This supervision agreement may be terminated by mutual agreement at any time up to the submission of the dissertation. The Director of Studies or the responsible Dean of Studies may be contacted in the event of serious breaches of the obligations set out in the supervision agreement.*

*Until submission of the Doctoral thesis, this supervision agreement can be terminated by mutual agreement at any time. The director of studies or the responsible dean of studies may be contacted in the event of a serious breach of the duties stipulated in the supervision agreement.*

With this care agreement, the person providing care undertakes to do so:

- to jointly plan the schedule for the dissertation.
- to be available to the student for at least two supervision meetings per semester.
- to support the student in modifying the concept if it turns out in the course of the work process that the project agreed at the beginning cannot be realized.
- to motivate the student to present the dissertation publicly or to provide him or her with relevant information about conferences or meetings and to facilitate contact with relevant academic colleagues.
- to assist the student in publishing the dissertation or part of the dissertation.

By signing this supervision agreement, the principal supervisor shall be obliged to

- work out a time management plan for the Doctoral thesis together with the student.
- be available to the student for at least two consultation meetings per semester.
- support the student in the modification of his/her Doctoral thesis concept provided that it does not turn out in the course of the research and writing process that the concept agreed on at the beginning cannot be realized.
- motivate the student to present his/her Doctoral thesis in public, to provide him/her with information on relevant congresses and conferences and to enable him/her to come into contact with colleagues in the same academic field.
- provide help with publishing the Doctoral thesis or a part thereof.

With this supervision agreement, the student commits him/herself:

- up to approx. **20** the completion of the dissertation.
- attend meetings with the person in charge.
- to report to the supervisor on the progress of the dissertation, in particular on delays or interruptions, during the supervision meetings.
- inform the supervisor that the subject has been put on hold.
- to adhere to the guidelines of good scientific practice when writing the dissertation in accordance with § 39 para. 8 of the Study Law Provisions of the Statutes.
- present the dissertation (or the work on it) in a suitable form (at a conference, in the dissertation semester, in the department, etc.).

By signing this supervision agreement, the student under supervision shall be obliged to

- aim for finishing his/her Doctoral thesis by approximately **20**.
- keep consultation appointments with the supervisor.
- report on the progress of the Doctoral thesis to the supervisor during the consultation meetings, in particular about delays or interruptions.
- inform the supervisor when he/she stops work on a topic.
- comply with the guidelines of good academic practice according to § 39 para. 8 of the statutes' provisions of study law when writing his Doctoral thesis.
- present the Doctoral thesis (or the work on it) in a suitable form (at a conference, in a seminar for doctoral students, in the department etc.).

<p>→ Unterschrift der studierenden Person/ Signature of the student</p>	
<p><b>First supervisor/1<sup>st</sup> Supervisor</b></p>	
<p>→ Subject of the teaching authorization or § 99 (5) Qualification position Subject of the teaching qualification or § 99 (5) qualification Prof.</p>	
<p>Signature of the first supervisor Signature of the 1<sup>st</sup> Supervisor</p>	
<p>Mentor</p>	
<p>→ Subject of the teaching license or § 99 (5) qualification office Subject of the teaching qualification or § 99 (5) qualification Prof.</p>	
<p>Signature of the mentor Signature of the mentor</p>	
<p><b>OPTIONAL:</b> Co-supervisor</p>	
<p>→ Subject of the teaching authorization or of the completed doctoral program Subject of the teaching qualification or completed doctoral program</p>	
<p>Signature of the co-supervisor Signature of the co-supervisor</p>	
<p><b>OPTIONAL:</b> <u>Contributing</u> person/contributor</p>	
<p>→ Subject of the teaching authorization or of the completed doctoral program Subject of the teaching qualification or completed doctoral program</p>	
<p>Signature of the contributor Signature of the contributor</p>	
<p><b>Institute or research center,</b> where the dissertation is being carried out Institute or research facility at which the Doctoral thesis will be done</p>	
<p>→ Name of the Head of Institute Name of the Head of Institute</p>	
<p>Signature of the Head of Institute Signature of the Head of Institute</p>	

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Stellungnahme der Doktoratsschule/ Statement of the Head of the Doctoral School

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Positive/Positive

The planned doctoral studies can be carried out in the doctoral school according to the curriculum.  
The planned doctoral program can be pursued at the doctoral school according to the curriculum.

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Negative/negative  
justification/reason: .....

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Name of the Head of the Doctoral  
School Name of the Head of the  
Doctoral School .....

Signature of the Head of the Doctoral School  
Signature of the Head of the Doctoral School

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**The statement of the Dean of Studies will be provided by the Prüfungsreferat.** The statement of the  
Dean of Studies will be provided by the Prüfungsreferat.

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Positive/Positive      Negative/Negative  
Justification/Reason: .....

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Signature of the Dean of Studies Signature of the Dean of Studies .....

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## Arbeits- und Zeitplan/Work and time schedule

### Ablauf und Planung/Procedure and planning

<b>1st/1st<sup>st</sup> semester</b>	
<b>2nd/2nd<sup>nd</sup> semester</b>	
<b>3rd/3<sup>rd</sup> semester</b>	
<b>4th/4th<sup>th</sup> semester</b>	
<b>5th/5<sup>th</sup> semester</b>	
<b>6th/6th<sup>th</sup> semester</b>	