

Regulations for the Course of Study and Examinations Leading to the Ph.D. (Doctor of Philosophy) in Systems Neurosciences at the University of Veterinary Medicine Hannover

Section 1

Objectives of the Ph.D. Program

Paragraph 1 Objectives

The Center for Systems Neurosciences (ZSN) Hannover is responsible for the postgraduate doctoral program leading to the Ph.D. in Systems Neurosciences (henceforth "the Ph.D. program") at the University of Veterinary Medicine Hannover. The ZSN comprises working groups from the University of Veterinary Medicine Hannover, the Hannover Medical School, the University of Hannover, and the University of Music and Drama Hannover. This Ph.D. program provides project-oriented postgraduate training in neuroscientific research. The program aims to train students for specialized, independent scientific work and to provide them advanced qualifications for research or related work. It is intended to promote promising young scientists in advanced studies in neurosciences. The Ph.D. course is designed for a period of three years. Students who have completed the curriculum and successfully passed the final examination will be awarded the degree of "Doctor of Philosophy" (Ph.D.) by the University of Veterinary Medicine Hannover.

Section 2

Admission and Enrolment

Paragraph 2 Admission Requirements

- (1) Applicants for the Ph.D. program must have successfully completed a university degree in veterinary medicine, medicine, dental medicine (state examination or master's degree), biology, biochemistry, chemistry or in another field of the natural sciences (diploma, master's degree). A corresponding degree from a non-German university in the above fields can be recognized by the Ph.D. Committee as equivalent to a German degree. Successful completion of the first part of a master's program at one of the member establishments of the ZSN in Hannover can also be recognized by the Ph.D. Committee upon application as qualification for admittance to the program, if the student has shown outstanding performance in this part of the course and has been recommended by the master's course committee in question.
- (2) All applicants must provide evidence of outstanding academic achievement. The *curriculum vitae* must indicate the applicant's exceptional ability and motivation. The Ph.D. Committee determines the applicants' suitability for admission.

Paragraph 3 Enrolment

- (1) The Ph.D. program is open to a limited number of students only. Twenty students will be enrolled per year. These students will be selected by the Ph.D. Committee. The program generally starts in the fall semester.

- (2) Admission to the Ph.D. program is determined by the applicants' suitability and degree of motivation in addition to their comprehensive final university examination scores. In case of more than 20 applicants, the Ph.D. Committee will interview applicants in order to gain more insight into their particular skills and motivation before making its selection. The project design and necessary laboratory facilities will also be taken into consideration for admission. The project design may be submitted to one or more external advisors for additional evaluation.
- (3) The following documents must be submitted to the chair of the Ph.D. Committee for application to the program:
- An informal letter of intent. This letter should indicate the applicant's particular skills and motivation for participation in the Ph.D. program, areas of scientific interest, and perspectives for his or her future professional career.
 - A *curriculum vitae*, documentation of scores of comprehensive examinations, complete college transcripts, and proof of competence in the English language. Applicants not from German-speaking countries are advised to take a course in the German language.
 - A letter of recommendation from the supervisor (Paragraph 4, Sub-paragraph 4). This should include the topic of the research project, confirmation of the scientific supervision and of the availability of the laboratory facility as well as prospects for a fellowship or other financial aid. Furthermore two additional advisors should also be proposed (Paragraph 4, Sub-paragraph 4).
 - A description of the research project. This should include a description of the most important aspects of the current state of research in the field and a work schedule, which is to be set up in collaboration with the prospective supervisor. There should be indication of an ambitious research project which promises to make an important contribution to science.
 - The scientific field in which the student intends to complete the Ph.D. thesis. This scientific field has to be represented at one of the member universities of the ZSN.
- (4) On the basis of the above documents the Ph.D. Committee decides on the admission of the applicant and determines the field of scientific research.

Section 3

Ph.D. Committee

Paragraph 4

Ph.D. Committee

- (1) The Ph.D. Committee is appointed by the Senate of the University of Veterinary Medicine Hannover. The Ph.D. Committee is responsible for all regulations concerning admission, enrolment, the study program, examinations, and graduation.
- (2) The Ph.D. Committee consists of eight members: six faculty members from the working groups of the ZSN, one postdoctoral research assistant, and one student (in an advisory capacity).
- (3) The Ph.D. Committee members are appointed by the Senate of the University of Veterinary Medicine Hannover after nomination by the council of the ZSN. The

Ph.D. students nominate their own representative. The faculty members and the postdoctoral research assistant should come from the different member establishments of the ZSN. The Committee is convened by the head of the ZSN and elects a chair from its members.

- (4) The Ph.D. Committee appoints a Thesis Committee for each student. This committee is comprised of the ZSN faculty member supervising the particular project (supervisor) and two other members of the ZSN, who do not belong to the supervisor's working group. The members of the Thesis Committee must have completed the German postdoctoral *Habilitation* degree or equivalent scientific qualification. If several Ph.D. students are working in the same discipline, the same persons may serve on their Thesis Committees. The Thesis Committee has the following responsibilities:
 - a.) Supervision and individual scientific consultation of the student during the entire course of study
 - b.) Evaluation of reports, examinations, and the final Ph.D. thesis submitted by the student.
- (5) The Ph.D. Committee may set up special regulations for a joint doctoral program involving domestic or foreign universities or research institutions that are not members of the ZSN. Such special regulations must not be any less demanding than these Ph.D. Regulations.

Section 4
Curriculum
Paragraph 5
Course of Study

- (1) The course will be taught on the basis of experimental research in project-oriented, interdisciplinary courses and seminars with a focus on research. The Ph.D. Committee establishes a curriculum with required and recommended courses in collaboration with the ZSN working groups. Courses will be held by the faculty members of the ZSN and by guest scientists and at least a part should be held in the English language. Courses given as part of other research training programs can be included in the Ph.D. program. Suitable courses at other university or extramural scientific institutions may also be approved by the Ph.D. Committee for credit in the program. The students should also actively participate in the courses, for example by holding lectures during seminars or participating in doctoral study groups. The students' performance in the courses will be evaluated and documented during the program by the teachers responsible.

The Ph.D. students and their supervisors set up individual curricula according to the curriculum approved by the Ph.D. Committee. The individual curriculum will then be approved by the Thesis Committee. The Ph.D. course must contain at least 300 hours of coursework, ca. 50% obligatory (interdisciplinary and specialized) and approx. 50% electives¹.

Paragraph 6
Supervision and Mentoring

- (1) Every Ph.D. student has a supervisor who is a member of the ZSN. For

interdisciplinary projects the Ph.D. Committee may assign in collaboration with the first advisor a second advisor whose work is closely related to the student's topic. The Ph.D. Committee confirms the supervisor(s) for the projects and appoints the Thesis Committee. The students must meet with their Thesis Committee for a preliminary exchange of information within four weeks after it has been named.

Within the framework of the research project, appropriate methods should be applied to a well-defined subject to ensure results that will contribute to the growing body of scientific knowledge and which can realistically be expected to be published in international peer-reviewed journals. The supervisor has to ascertain and demonstrate to the Ph.D. Committee that the student is not burdened with tasks beyond the scope of the work which will contribute to the student's Ph.D. qualifications.

- (2) The supervisors are responsible for funding the research project and will seek financial aid for the Ph.D. students assigned to them. The Ph.D. Committee decides on the distribution of any funds available to the ZSN for students.
- (3) The Ph.D. students are advised by their supervisors. At least once a year there will be a personal interview for discussion of the progress made in the project. The Thesis Committee group will appraise the progress made and submit a brief report to the Ph.D. Commission once a year.
- (4) The supervisors should assist the Ph.D. students with the planning of their professional future.
- (5) In case of early termination of a project, a joint conference must be held with the Ph.D. student, the student's Thesis Committee, and a member of the Ph.D. Committee. The Ph.D. Committee will then decide on the further course of action.
- (6) Supervision of the Ph.D. student ends with the student's passing of the final examination (Paragraph 10). Students must graduate within five years after beginning the Ph.D. course. The Ph.D. Committee can make exceptions if circumstances warrant.

Paragraph 7 Scientific Colloquia

Once a year the Ph.D. Committee invites the students to participate in a colloquium open to the university scientific community. The student gives either a lecture or a poster presentation about the progress made in the particular project and about the current state of research in the field. Form and content of the presentation will be evaluated by the Ph.D. Committee.

Section 5 Examinations

Paragraph 8 Intermediate Examination

As a rule the intermediate oral examination takes place 18 months after the beginning of the Ph.D. study. The dates of these examinations are set by the Ph.D. Committee. This examination covers topics from the student's research project and coursework and is conducted by the Thesis Committee. The student's knowledge of English (and if necessary of German) will also be taken into consideration. If the student fails the intermediate examination, one second attempt can be made at least

three months, but no more than six months later, as determined by the Thesis Committee. A second failure of the intermediate examination is final and the student has to be dismissed from the Ph.D. program. The Thesis Committee informs the Ph.D. Committee of the results of the intermediate examination.

Paragraph 9 Admission to the Final Ph.D. Examination

After completion of the course (usually after three years), the student must pass the final examination by the Thesis Committee. The student must provide the following documents for admission to the examination:

1. Proof of regular and successful participation in all courses and seminars in the curriculum. As stated in Paragraph 7, this has to include at least 300 hours of coursework and successful participation in two scientific colloquia.
2. Proof of successful completion of the intermediate examination.
3. A thesis written by the Ph.D. student in German or English about the research completed during the Ph.D. course. The thesis contains an introduction, a methods section, results, discussion, and English and German summaries. The thesis has to contribute considerably to the body of knowledge in the selected scientific field of the research project. The supervisor should support efforts to publish the thesis or parts of it in international peer-reviewed journals.
4. Alternatively, the student may submit at least two publications of which she or he is the first author and that have been published in internally recognized peer-reviewed scientific journals. The status of "accepted for publication" is also considered to be "published". The student must indicate his or her own contribution to the planning, execution, and evaluation of the experiments upon which the publication is based and to the production of the manuscript. These publications must be thematically connected and submitted with a single title as a cumulative thesis and must include a thorough presentation of the research topic, a comprehensive summary (in English and German), and a discussion of the results.
5. The degree of Dr. rer. nat. may be conferred upon special written request.

Paragraph 10 Evaluation of the Ph.D. Thesis

The Thesis Committee prepares an expert evaluation of the thesis. This has to be submitted to the Ph.D. Committee, which will make the final decision on the evaluation. An external evaluation is also required. All evaluations have to be prepared independently and in writing and must judge the thesis as "passing" or "failing".

If on the basis of the evaluations the Ph.D. Committee comes to the conclusion that the thesis does not fulfill the requirements for the written Ph.D. work due to considerable flaws, the student may not be invited to the final Ph.D. examination and will be dismissed from the Ph.D. program.

Paragraph 11 Ph.D. Examination

- (1) For the Ph.D. examination the student presents his or her thesis in a lecture open to all members of the university scientific community. Subsequently the student defends the thesis in a public defense, for which the Ph.D. Committee extends the

Thesis Committee to include the external expert(s) for the written Ph.D. thesis. Each of these scientists has one vote on the outcome of the examination.

If the student fails the final Ph.D. examination, a second date is scheduled by the Thesis Committee. This second trial has to follow after at least three months but no later than six months. A second failure is final and the student will be dismissed from the Ph.D. program.

- (2) After the defense, the Ph.D. Committee determines the overall evaluation on the basis of the results of the thesis (Paragraph 9) and the defense (Paragraph 11).

Section 6

Graduation

Paragraph 12

Award of the Academic Degree of Doctor of Philosophy (Ph.D.)

- (1) When the student has successfully passed the Ph.D. examination, the University of Veterinary Medicine awards the degree of Doctor of Philosophy (Ph.D.) and issues a document (Appendix 1 or 2). The award of this degree entitles the graduate to the academic title of Ph.D., with the option of adding the scientific field determined by the Ph.D. Committee.
- (2) Graduates with a background in the natural sciences which in principle allows the award of the "Dr. rer. nat." can alternatively choose to be awarded the degree of "Dr. rer. nat." Furthermore one of the scientists involved in the award of the Ph.D. must be from a faculty of the natural sciences. A document corresponding to Appendix 3 or 4 is issued upon award of this degree.

Paragraph 13

Submission of Copies of the Ph.D. Thesis

Before the Ph.D. is awarded, the student must submit the written Ph.D. thesis in one digital copy and in five paper copies made from the digital copy to the University of Veterinary Medicine Hannover. The Ph.D. Committee may insist on factual corrections in the written Ph.D. thesis before it is reproduced. The copies for submission must include a title page indicating that it is a written work submitted in partial fulfillment of the requirements for the academic degree of Doctor of Philosophy (Ph.D.).

Paragraph 14

Annulment of Graduation

Serious errors made during admission procedure or fraud committed by the student are grounds for the Senate of the University of Veterinary Medicine to declare the graduation invalid.

Paragraph 15

Revocation of the Academic Degree

The Ph.D. degree may be revoked by the Senate of the University of Veterinary Medicine according to existing legal provisions.

Paragraph 16

Interim Regulations

These regulations apply to students who begin the Ph.D. program after these regulations go into effect. Students who entered the program before this time may choose to continue under the old or the new regulations.

The above regulations were approved by the undersigned and are herewith made known to all members of the scientific community and go into effect the following day.

Hannover, 7 October, 2004

Dr. Gerhard Greif
President

Appendix 1 German (specimen Ph.D. diploma)

Muster der Promotionsurkunde zum Ph.D. nach § 12

(Siegel)

Die Tierärztliche Hochschule Hannover verleiht

Frau/Herrn _____

aus _____

den Grad eines

Doctor of Philosophy (Ph.D.) im Fachgebiet

nachdem sie/er im ordnungsgemäßen Ph.D.-Promotionsverfahren des Zentrums für Systemische Neurowissenschaften Hannover durch die wissenschaftliche Arbeit (These)

sowie die Disputation ihre/seine wissenschaftliche Befähigung nachgewiesen hat.

Hannover, den _____

(Siegel)

Präsident und Senat der Tierärztlichen Hochschule Hannover

Appendix 2 (English)

Specimen Ph.D. diploma according to Paragraph 12

(Seal)

The University of Veterinary Medicine Hannover herewith awards to

Mr/Ms _____

born on _____

in _____

the degree of

Doctor of Philosophy (Ph.D.) in the discipline of

after successful fulfillment of all requirements of the Ph.D. program of the Center for Systems Neurosciences Hannover, including submission and public defense of the scientific work (thesis) entitled

_____ ,

having thus demonstrated his/her scientific qualifications.

Hannover (date) _____

(Seal)

President and Senate of the University of Veterinary Medicine Hannover

Appendix 3 (German) (specimen Dr. rer. nat. diploma)

Muster der Promotionsurkunde zum Dr. rer. nat. nach § 12

(Siegel)

Die Tierärztliche Hochschule Hannover verleiht

Frau/Herrn _____

aus _____

den Grad eines

Doctor rerum naturae (Dr. rer. nat.)

nachdem sie/er im ordnungsgemäßen Ph.D.-Promotionsverfahren des Zentrums für Systemische Neurowissenschaften Hannover durch die wissenschaftliche Arbeit (These)

sowie die Disputation ihre/seine wissenschaftliche Befähigung nachgewiesen hat.

Hannover, den _____

(Siegel)

Präsident und Senat der Tierärztlichen Hochschule Hannover

Appendix 4 (English)

Specimen Dr. rer. nat. diploma according to Paragraph 12

(Seal)

The University of Veterinary Medicine Hannover herewith awards

Ms/Mr _____

from _____

the degree

Doctor rerum naturae (Dr. rer. nat.)

after successful fulfillment of all requirements of the Ph.D. program of the Center for Systems Neurosciences Hannover, including submission and public defense of the scientific work (thesis) entitled

_____,

having thus demonstrated his/her scientific qualifications.

Hannover (date) _____

(Seal)

President and Senate of the University of Veterinary Medicine Hannover