Course of Study
Begin with winter term

1. Supervision group

The group consists of the main supervisor and two co-supervisors to ensure and enforce the interdisciplinary idea of the ZSN. Both must be members of the ZSN and they should be from different institutions. The members of the supervision group are confirmed by the PhD commission and will be communicated by the HGNI. If the degree “Dr. rer. nat.” instead of “PhD” is desired the PhD commission has to be informed, because it is required that in the doctoral procedure one of the examiners must have the degree Dr. rer. nat.

1.1. Personal briefings

Eight weeks after nomination of the members of the supervision group the student has to arrange a first meeting.

Thereafter, official meetings with the supervision group must take place once a year to discuss the project and to further substantiate the course of study, personal goals and to develop an individual course of study (which electives to select, which conferences to go to, etc.). The arrangement of the official meetings is in the student’s responsibility. The protocol forms (in the study book) must be signed by the supervision group and the originals sent to the HGNI.

1.2. Good Scientific Practice (GSP)

In the beginning of the thesis work and laboratory activities the supervisor introduces the student to the Good Scientific Practice (Gute wissenschaftliche Praxis). Scientific work is based on principles observed in all countries and in all scientific disciplines. First among these is honesty towards oneself and others. This is also the ethical norm and foundation of the various rules that apply in the different disciplines defining scientific professionalism, or good scientific practice. One of the core tasks of scientific teaching and academic self-regulation is to instruct students in these principles and to safeguard their validity and application in practice. Good scientific practice is also a prerequisite for highly productive research that is recognized in international competition. Violation of these principles is scientific misconduct. In case of suspicion of scientific misconduct, it is the responsibility of the University to clarify the facts in an orderly way, and if necessary to impose the sanctions stipulated by law.

Guidelines are available on the TiHo homepage: http://www.tiho-hannover.de/studium-lehre/promotion-und-phd-programme/phd-systems-neuroscience/good-scientific-practice/

Please send the originally signed protocol to the HGNI.
2. Course of study

The course of study comprises one half of compulsory (interdisciplinary and project-related courses) and one half of elective courses.

2.1. Compulsory course work

The purpose of the obligatory course work is to familiarize participants with important aspects of the various fields of work included in the ZSN and to acquire basic knowledge in the field of neuroscience. Compulsory hours of overtime can be credited to the required elective hours.

ZSN seminar (1.5 h/each)

A series of lectures open to the public in which invited speakers and members of the ZSN present their neuroscientific research.

Workshop Neuroscience (40 h)

After the first semester the professors give introductory lectures on the various fields covered at the ZSN. One subtopic selected by the teachers is assigned to each student for further study to report on during the following workshop after the 3rd semester.

Main topics are (may change with different lecturers):

- Introduction to neuroscience and emotions
- Hearing: from particle motion to sound perception
- Introduction to cell biology
- Introduction to neuropharmacology
- Introduction to dynamical systems in neuroscience
- Stroke

Missed topics have to be caught up on!

PhD student meetings (2 h/each)

At least once a year (additionally on request) all students will meet with the speaker of the PhD commission and a representative of the graduate school HGNI. The meeting offers a forum for exchange of information and for organization of group projects.

Repetition biometry (1st semester) (12 h)

Avoiding plagiarism (1st semester) (1–3 h)

Labclass Cellular biology (1st semester) (25 h)

Labclass Molecular techniques (2nd semester) (25 h)

Labclass The senses, emotions, motor functions (3rd semester) (25 h)

At the beginning of the labclasses all students and teachers participate in a half-day seminar, during which the teachers provide an overview of the theory of the techniques necessary for experimental work. Afterwards, the practical laboratory work is carried out in small groups of three to five persons in the laboratories of various departments of the university. After completion of the laboratory work, the results are presented and discussed in a final session. One of these courses can be substituted by an external course after consulting the PhD commission.
**Attendance of public defences**  
(2 x 4 h)  
It is obligatory to participate in final examinations, that take place as defence colloquia each semester. At least 2 times the attendance must be acknowledged in the study book.

**Poster presentation**  
(8 h)  
After the first year, the PhD student has to prepare a poster at the annual HGNI colloquium (Graduate School Day) showing the progress of the project. Poster and its short presentation are evaluated by members of the faculty. The participation in the colloquium is credited with 8 h.

**Second year project**  
(2 h/each meeting)  
Each year of students during their course of study organizes a joint project of choice. "Science meets school" and "IdeenEXPO" are alternating projects, but other projects are possible as well. The aim is to develop management and teamwork skills and to gain valuable experiences that become increasingly helpful while developing a career in sciences.

**Oral presentation**  
(8 h)  
After the second year students have to present their work in a talk at the Graduate School Day. There will be a feedback by the evaluators. The participation in the colloquium is credited with 8 h.

### 2.2. Electives

Within the elective program students can develop their own special interests and deepen their specialized knowledge. The elective classes include lectures, seminars and laboratory courses, which generally cover more specialized topics than the obligatory classes. Furthermore, students are given the opportunity to train management, team work and presentation skills as well as competence regarding writing and publishing papers and statistics.

A course catalogue is published each semester with classes covering the following areas:

- Basics of Cellular and Molecular Neuroscience
- Basics of Biometrics, Presentation, Animal Welfare, etc.
- Sensory Systems
- Behavioral and Cognitive Systems
- Limbic Systems
- Motor Systems
- Systems Neuroscience: Clinics

Registration should be done by email to the contact person mentioned in the course catalogue.

Courses with neuroscientific content and/or courses of general scientific interest offered by other faculties/institutions can also be attended. Conferences will be acknowledged if the student contributes actively with a poster or an oral presentation (a maximum of 8 hours can be credited). For approval a written consent of the main supervisor and a written request has to be addressed to the PhD commission (via HGNI).
3. Final examination
(for details please see “Guidelines for Submission of a Thesis”)

For approval to the final examination the course work has to be completed, at least one submitted publication as first author in recognised scientific journals with peer review is required and a written thesis has to be prepared. The thesis can be submitted either in English or in German.

This can be a monograph or in chapter form (similar to cumulative thesis, where two publications with the student as first author must be accepted). The supervision group and an external referee write reports on the thesis and send them to the PhD commission. Finally, an oral presentation of the thesis with public defence (“Disputation”) follows. After the defence, the PhD commission decides about the overall result.

4. Finalization and promotion ceremony

After passing the final examination the last student's duty is the submission of depositary copies and a pdf version of the thesis to the library of the TiHo. (Details are described in the “Guidelines for Submission of a Thesis”.) The library sends a receipt to the Graduate School.

Finally, the PhD student receives the certificate and the respective academic degree is awarded during a promotion ceremony (Feierliche Promotion) by the president of the TiHo together with all candidates of the semester (December or June). Thereafter it is allowed to use the title.

5. Information

Institutions conducting the program:

- University of Veterinary Medicine Hannover (Tierärztliche Hochschule Hannover, TiHo)
- Hannover Medical School (Medizinische Hochschule Hannover, MHH)
- Leibniz University Hannover (Leibniz Universität Hannover, LUH)
- University of Music, Drama and Media Hannover (Hochschule für Musik, Theater und Medien Hannover, HMTMH)

For all general information, guidelines, PhD order, news please see
www.tiho-hannover.de/de/studium-lehre/promotion-und-phd-programme/phd-systems-neuroscience/

Zentrum für Systemische Neurowissenschaften Hannover, ZSN
(Center for Systems Neuroscience Hannover)
www.zsn-hannover.de