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. All must be members of the ZSN and they must 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

Within 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 (e.g. 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** (download) must be signed by the supervision group and **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**.

1.3. Dissertationsanzeige – Tierschutz

1.4. Betreuungsvereinbarung

2. Course of study

The course of study comprises 50% of compulsory (interdisciplinary and project-related courses) and 50% 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 by 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
Introduction to neuroanatomy
Introduction to neuropathology
Introduction to psychiatry
Introduction to cognitive neuroscience
Stroke

Missed topics have to be caught up on!

PhD student meetings **(2 h/each)**

At least **once a year** all students will meet with their representatives. The meeting offers a forum for exchange of information and for organization of group projects.

Repetition biometry (1st year winter term) **(12 h)**

Avoiding plagiarism (1st year) **(1–3 h)**

Labclass Cellular biology (1st year winter term) **(25 h)**

Labclass Molecular techniques (1st year summer term) **(25 h)**

Labclass The senses, emotions, motor functions (2nd year winter term) **(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 programme 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 (Defence)

(for details please see "Guidelines for Submission of a PhD 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 in English.

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 student's last 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 PhD Thesis**".)

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 programme:

- 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