2 Optional courses (OC)

Optional courses comprise specific scientific modules (OC-S), seminars for the development of communication and organization skills (OC-O), further vocational training (OC-V), and language courses (OC-L). Optional courses will be offered within the OCC but can also involve courses provided elsewhere in the university, e.g. in the M.SC Program in Biology or Psychology and Sport Studies, and research modules taken outside the lab where the PhD research is conducted. In the following, a number of courses will be listed. The list is not exhaustive and might change over time. PhD students may propose additional courses they want to attend. The Program Commission (PC) will then decide about the acceptance of the course and the points to be credited for the participation.

Research module **(OCC members and members of the Faculty of Biology)**

Research modules are intensive courses for a small number of participants focussing on a particular project or methodology. They can cover different topics from cognitive and behavioral neuroscience and can be arranged between individual students and members of the OCC or the Faculty of Biology. A research module consists of 8 weeks of practical study on an individual project.

Each module is eight weeks, full time: 10 ECTS
Availability: continuously
Maximum ECTS in 3 years: 10

Basic neuroscience **(Pape)**

This lecture presents the basics of neurophysiology and functional neuroanatomy. The aim of the lecture is to ensure that beginning PhD students from various academic backgrounds gain the same level of knowledge about basic neurophysiological and -anatomical principles, thus laying the ground on which further courses and the studies of the doctorate can build. Topics are: structure and function of neurons; sensory systems, integrative functions of the central nervous system, motor systems, autonomic nervous system.
It is compulsory for PhD students from other fields than biology, medicine, or psychology.

5 hours per week: 5 ECTS;
Available once per year (summer semester)
Maximum ECTS in 3 years: 5

Modern investigation methods in human neuroscience **(Pantev)**

The goal of this lecture is to mediate interdisciplinary knowledge about modern investigation methods in human neuroscience. Topics include: MEG, EEG, evoked potentials, and functional imaging.

2 hours per week: 2 ECTS
Available once per year
Maximum ECTS in 3 years: 2

Lecture in bioethics **(Dept of Biology, various lecturers)**

Introduction to bioethics, technological impact assessment, stem cells, "green" gene technology, transgenetic animals, models of the ethical analysis of the embryonic state, ethics in the work with animals, scientific basics of nature conservation.
Aims: Reflection on the scientific practical work, communication of scientific principles for the assessment of ethical questions, teamwork

2 hours per week: 2 ECTS
Available yearly
Maximum ECTS in 3 years: 2

Lecture: Behavioral biology **(Sachser)**

This lecture gives an introduction into the main fields of behavioral biology: (1) the mechanisms of behavior accentuating the interplay between genes, hormones and the environment; (2) behavioral development focusing on environmental influences during sensitive phases of life; (3) behavioral ecology and sociobiology emphasizing the evolution of behavior.

1 hour per week: 1 ECTS
Available yearly
Maximum ECTS in 3 years: 1

Lecture Behavioral neuroendocrinology **(Sachser)**

This lecture addresses the interplay between hormones, brain and behavior. Firstly, it will be presented in which way hormones are involved in the control of behavior (activating and organizing effects). Secondly, the impact of social interactions on the endocrine system will be shown (social stress). Lastly, recent advances in evolutionary endocrinology will be discussed.

1 hours per week: 1 ECTS
Available yearly
Maximum ECTS in 3 years: 1

Lecture: Brain structures, functions, and deficits **(Lappe)**

Introduction to the structure and function of the brain with particular emphasis on cognitive processes such as attention, memory, executive control, decision making.

2 hours per week: 2 ECTS
Available yearly Maximum ECTS in 3 years: 2

Lecture: Experimental methods for cognitive and behavioral neuroscience

(Schubotz, Vorberg, Bölte, Lappe, Zwitserlood)

Introductory overview over the main experimental methods in cognitive and behavioral neuroscience in humans: psychophysics, signal detection theory, reaction time measurements, EEG, MEG, fMRI, PET, transcranial magnetic stimulation, computational modelling

2 hours per week: 2 ECTS
Available yearly Maximum ECTS in 3 years: 2