

Module Name Lecture Neuroscience						
Type of Module ○ Basic Module				Module Code Neurobiology Lecture		
Identification Number MN-B-N 1	Workload 180 h	Credit Points 6 CP	Term 1 st term of studying	Offered Every Winter term	Start Winter term only	Duration 1 term
1	Course Types Lecture		Contact Time 49 h	Private Study 131 h		Planned Group Size* Approx. 50-70 students
2	Module Objectives and Skills to be Acquired Students who successfully completed this module <ul style="list-style-type: none"> • have acquired an understanding of neural functions and mechanisms from the cellular to the behavioral level • have acquired in-depth knowledge of important concepts in the neurosciences • will be in a position to access future developments in the neurosciences • have acquired the ability to form and test hypotheses in the neurosciences 					
3	Module Content The lecture module in neurobiology provides an expanded view on neuroscience, reaching from basic principles of neurobiology to modern neuroscientific approaches. Being mainly geared to the textbook <i>Principles of Neurobiology</i> by Liqun Luo the lecture presents the major concepts of neuroscience. With a single textbook as backbone and framed by the scientific emphasis of the lecturers the lecture series conveys the current knowledge in Neurobiology and introduces the students in the fascinating world of communicating neuronal networks. In this course the students will learn the essential knowledge of fundamental neurobiology e.g., neuroanatomy, cytology, and brain architecture, as well as ion channels and electrical properties, neural signaling, circuit functions and motor control. Further, the students will gain insights in brains development, of neurodegeneration and neuropathology. Moreover, the lecture discusses how neuronal networks integrate internal and external stimuli to generate appropriate behavior and how computational models can help to understand the underlying neuronal networks. Regarding the scientific emphasis of the participating lecturers, the lecture series delves likewise neurobiological questions of both vertebrates and invertebrates. <ul style="list-style-type: none"> • Neuroanatomy and cytology • Brain architecture • Ion channels and electrical properties of neurons • Neural signaling • Circuit function • Motor control • Sensory systems • Learning and memory 					

3	<p>Module Content (continued)</p> <ul style="list-style-type: none"> • Neurodegeneration and -regeneration • Neuroendocrinology and neuromodulation • Computational neuroscience • Neuropathology • Neural development • Enteroreception and control of homeostasis • Behavior
4	<p>Teaching Methods</p> <ul style="list-style-type: none"> • Lecture
5	<p>Prerequisites (for the Module)</p> <p>Enrollment in the Master’s degree course “Biological Sciences” or in the Master’s degree course “Experimental and Clinical Neuroscience”</p> <p>Additional academic requirements</p> <p>The knowledge of neurobiology on the level of a general biology text book (e.g. Campbell or Purves) is required.</p>
6	<p>Type of Examination</p> <p>Two hours written examination about topics of the lectures (100 % of the total module mark)</p>
7	<p>Credits Awarded</p> <p>Written examination at least “sufficient”</p>
8	<p>Compatibility with other Curricula*</p> <p>Master’s degree course “Experimental and Clinical Neuroscience”</p>
9	<p>Proportion of Final Grade</p> <p>7.5 %</p>
10	<p>Module Coordinator</p> <p>Dr. Thomas Riemensperger, phone 470 6135, e-mail: triemens@uni-koeln.de</p>
11	<p>Further Information</p> <p>Participating faculty: Prof. Dr. S. van Albada, PD Dr. B. Altenhein, Prof. Dr. A. Büschges, Prof. Dr. S. Daun, Prof. Dr. H. Endepols, Dr. M. Gruhn, Prof. Dr. K. Ito, Prof. Dr. P. Kloppenburg, Prof. Dr. T. Korotkova, Prof. Dr. M. Nawrot, Prof. Dr. R. Predel, Dr. T. Riemensperger, Dr. V. Rostami, Prof. Dr. H. Scholz</p> <p>Literature:</p> <ul style="list-style-type: none"> • Liqun Luo: Principles of Neuroscience (ISBN-13: 978-0815345336) • Further information about textbooks and other reading material will be given on the ILIAS representation of the course (see https://www.ilias.uni-koeln.de/ilias/goto_uk_cat_2815610.html).

11	Further Information (continued) General time schedule: Weeks 1-14: Tue. from 11:00 to 12:30 a.m.; Thu 08:15 to 09:45; Week 15 (Mon.-Fri.): Preparation for the written examination Introduction to the module: October 11, 2022 at 11:00 a.m. online (further information/link will be sent to your Smail-Account); for preparation to the module before this introduction see ILIAS link under literature. Written examination: February 07, 2023, second/supplementary examination March 07, 2023; the latter date may vary if students and module coordinator agree. More details will be given at the beginning of the module.
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* Depending on how many students from other subject areas (and if indicated also from other master's degree courses, see 5) choose this module.