

Essentials in Neuroscience					
Identification number	Workload	Credit points	Term of studying	Frequency of occurrence	Duration
MN-B-SM (N1)	360 h	12 CP	1 st or 2 nd term of studying	Winter term, 2 nd half	7 weeks
1	Type of lessons		Contact times	Self-study times	Intended group size*
	a) Lectures		36 h	108 h	max. 8
	b) Practical/Lab		90 h	66 h	max. 2-8
	c) Seminar		8 h	52 h	max. 8
2	Aims of the module and acquired skills				
	Students who successfully completed this module ...				
	<ul style="list-style-type: none"> • will have learned essential neural functions. • have acquired an understanding of important concepts in the neurosciences. • have acquired an understanding of key methods in the neurosciences. • have learned how to present research results in oral and written form and to critically discuss scientific publications related to the topic of the module on a professional level. • are able to transfer skills acquired in this module to other fields of biology. 				
3	Contents of the module				
	<ul style="list-style-type: none"> • Functional neuroanatomy and development of the nervous system • Electrical properties of neurons and ion channels • Intra- and inter-neuronal signaling and the detection of compounds that serve signaling • Extracellular and intracellular recording techniques • Neurogenetics • Sensory functions and motor activity • Computational Neuroscience • Imaging techniques • Laser-scanning microscopy 				
4	Teaching/Learning methods				
	<ul style="list-style-type: none"> • Lectures; Methods courses (theory and practicals); Seminar 				
5	Requirements for participation				
	Enrollment in the Master's degree course "Biological Sciences" or in the Master's degree course "Experimental and Clinical Neurosciences"				
	Additional academic requirements: The knowledge of neurobiology on the level of a general biology text book (Campbell or Purves) is absolutely required.				

Essentials in Neuroscience continued

6	<p>Type of module examinations</p> <p>The final examination consists of two parts: Two hours written examination about topics of the lectures, the practical/lab part and the seminars (70 % of the total module mark) and oral presentation (30 % of the total module mark)</p>
7	<p>Requisites for the allocation of credits</p> <p>Regular and active participation; Passed seminar paper; Each examination part at least "sufficient" (see appendix of the examination regulations for details)</p>
8	<p>Compatibility with other Curricula</p> <p>Elective module in the Master´s degree course "Experimental and Clinical Neurosciences"</p>
9	<p>Significance of the module mark for the overall grade</p> <p>In the Master´s degree course "Biological Sciences": 15 % of the overall grade (see also appendix of the examination regulations)</p>
10	<p>Module coordinator</p> <p>PD Dr. Joachim Schmidt, phone 470-6135, e-mail: joachim.schmidt@uni-koeln.de</p>
11	<p>Additional information</p> <p>Subject module of the Master´s degree course "Biological Sciences", Focus of research: (N) Neurobiology</p> <p>Participating faculty: PD Dr. B. Altenhein, Prof. Dr. A. Büschges, Dr. M. Gruhn, Dr. S. Hess, Prof. Dr. K. Ito, Prof. Dr. P. Kloppenburg, Prof. Dr. M Nawrot, Prof. Dr. R. Predel, Dr. T. Riemensperger, PD Dr. J. Schmidt, Prof. Dr. H. Scholz</p> <p>Literature:</p> <ul style="list-style-type: none"> • Information about textbooks and other reading material will be given on the E-learning platform ILIAS and during the course <p>General time schedule: Week 1-6 (Mon.-Fri.): Lectures, methods courses and preparation for the seminar talk; Week 7 (Mon.-Fri): Preparation for the written examination</p> <p>Note: The module contains some hands-on laboratory work conducted in groups and is taught in part in labs.</p> <p>The teaching language of the course is English.</p> <p>Introduction to the module: November 25, 2019 at 9:00 a.m., Cologne Biocenter, room 1.007 (first floor); for preparation to the module before this introduction see advice(s) under literature</p> <p>Written examination: January 31, 2020, second/supplementary examination March 27, 2020; the latter date may vary if students and module coordinator agree. More details will be given at the beginning of the module.</p>

*6 students from the Master´s degree course "Biological Sciences" and 2 students from the Master´s degree course "Experimental and Clinical Neurosciences".