Course title: Sensory Systems

Identification number	Workload	Credits	Frequency of occurrence	Duration
M-Neuro-AM8 a-e	180h	6	WS	1 Semester

	Type of lessons	Contact times	Self-study times	Intended group size
1	a) lecture b) exercises	a) 20 h b) 53 h	107h (Preparation and post-processing of lectures, practical and exam)	a) 8 students b) 8 students/advisor

2 **Aims of the module and acquired skills**

Students should internalize the biological basics of peripheral and central auditory processing in order to understand psychophysical performance and pathophysiological changes in hearing. They should become familiar with basic subjective and objective hearing testing procedures that can be applied to hearing-impaired patients with focus to neuroscience. Furthermore, pathophysiological changes of the hearing and their rehabilitation possibilities are to be experienced.

3 **Contents of the module**

Biology of Hearing
The basic knowledge of normal and disturbed peripheral and central hearing processing should be acquired by developing the essential sensory, neurophysiological and psychophysical processes, also taking into account aspects of maturation. The knowledge will be deepened by the application of selected subjective and objective hearing test methods including the registration of otoacoustic emissions as well as evoked early and late evoked potentials (incl. P300, MMN).

4 **Teaching/Learning Methods**

Seminar; Instructions for independent practical work, specialist presentation

5 **Requirements for participation**

Enrollment in the Master's degree course "Experimental and Clinical Neurosciences" at the University of Cologne
Content: Basic knowledge of anatomy, physiology and pathophysiology of the eye and visual pathway as well as of the peripheral and central auditory organ. Basic knowledge of sensory and nerve physiology as well as psychophysics. If applicable, knowledge of peripheral hearing disorders as well as auditory processing and perception disorders.

6 **Type of module examination**

Preliminary Examinations: Regular participation and active collaboration
Final examination: paper

7 **Requirement for the allocation of credits**

Successful submission of the paper

8 **Compatibility with other Curricula**

no

9 **Significance of the module mark for the overall grade**

In the Master´s degree course "Experimental and Clinical Neurosciences": 6 % of the overall grade (see also appendix of the examination regulations)

10 **Module coordinator and teacher**

Module coordinator: Prof. Dr. rer.nat. Martin Walger; 478-4769; martin.walger@uni-koeln.de
Teacher: Prof. Dr. rer. nat. Martin Walger; Prof. Dr. rer. medic. Hartmut Meister (Jean Uhrmacher Institute); 478-97003; hartmut.meister@uni-koeln.de; Dr. sc. nat. Pascale Sandmann; 47832969; pascale.sandmann@uk-koeln.de

11	**Additional information** **Literature:** • Hellbrück J : Hören, Physiologie, Psychologie und Pathologie. Hogrefe Publishing 1993 • Hoth S, Mühler R, Neumann K und Walger M: Objektive Audiometrie im Kindesalter, Springer Publishing 2014 • Picton T: Human Auditory Evoked Potentials. Plural Publishing 2011

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