Module variant to: Research Topics in Selected Areas of Biology

Module: Research Topics in Molecular Neurogenetics	
University/Department/Teaching Unit: Freie Universität Berlin/Department of Biology, Chemistry, Pharmacy/Biology	
Module coordinator: Module instructors	
Prerequisites: none	
Learning objectives: Students possess knowledge of molecular mechanisms in neurogenetics, neurodevelopment, and neurophysiology. They are particularly skilled in applying and independently executing a wide range of molecular genetic, physiological, and behavioral methods. They are capable of planning and conducting neurogenetic experiments and discussing the results of their investigations.	
Content: In-depth analysis of genes that are crucial for neuronal processes, with a focus on the structure and function of synapses. The course covers both classical and modern techniques, including mutagenesis, the generation of transgenic organisms, gene cloning, and the analysis of mutants. Students will gain hands-on experience working with recombinant proteins and antibodies, as well as comprehensive training in various advanced imaging techniques. These skills are essential for exploring and understanding the molecular underpinnings of neuronal function.	

Modes of instruction	**Contact hours** (hours per week during the semester)	**Types of active participation**	**Workload** (in hours)	
Lecture (V)	4	–	Class attendance (lecture) Preparation, before and after (lecture)	60 60
Seminar (S)	2	Presentation	Class attendance (seminar) Preparation, before and after (seminar)	30 90
Lab (P)	6	Carrying out and documenting lab experiments	Class attendance (lab) Preparation, before and after (lab)	120 150
			Exam preparation and exam	100

Module assessment	Written exam (60 minutes), wholly or partially in multiple-choice format; can also be carried out electronically or written report on research results (approx. 10 pages) or examination colloquium (approx. 20 minutes)	
Language	English	
Regular attendance required	Seminar and lab: yes, lecture: attendance recommended	
Total workload	600 hours	20 credit points
Duration	one semester	
Frequency	irregular	
Applicability	Master's degree program M.Sc. Biology; Master's degree program M.Sc. Biodiversity, Evolution and Ecology	

Utilization in the following specializations (decision by the examining board):

Biodiversity, Evolution and Ecology	
Genetics and Genomics	
Microbiology	
Molecular- and Cellular Biology	x
Molecular Plant Sciences	
Neurobiology	x
Biology	x