

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) 60 Preparation, before and after (lecture) 60
Seminar (S)	2	Presentation	Class attendance (seminar) 30 Preparation, before and after (seminar) 90
Lab (P)	6	Carrying out and documenting lab experiments	Class attendance (lab) 120 Preparation, before and after (lab) 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