

Module variant to: Topics in Molecular- and Cellular Biology

Module: Molecular Biology of Viruses and Viral Vectors			
University/Department/Teaching Unit: Freie Universität Berlin/Department of Biology, Chemistry, Pharmacy/Biology			
Module coordinator: PD Dr. Stefan Weger			
Prerequisites: none			
Learning objectives: After attending the module, the students have a broad range of theoretical knowledge about the molecular replication strategies of viruses, the mechanisms of virus-host cell interactions, the pathogenicity mechanisms of selected virus groups and the application of viral vectors in modern medicine. They can develop, present and critically discuss original literature themselves.			
Content: Covers structure of different families of viruses including simple and complex DNA and RNA viruses, function of various virus components, genome organization, gene regulation, genome replication, virus-host cell interaction, viral pathogenicity mechanisms and antiviral therapy. Using original literature, overarching connections between individual virus families in genome replication, the regulation of gene expression, interference with cellular defense mechanisms, viral-induced oncogenesis as well as the development and application of viral vectors for gene therapy are developed and presented.			
Modes of instruction	Contact hours (hours per week during the semester)	Types of active participation	Work load (in hours)
Lecture (V)	2	–	Class attendance (lecture) 30 Preparation, before and after (lecture) 15
Seminar (S)	1	Presentation and discussion	Class attendance (seminar) 15 Preparation, before and after (seminar) 15 Exam preparation and exam 75
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: yes, lecture: attendance recommended	
Total workload		150 hours	5 credit points
Duration		two semester	
Frequency		irregular	
Applicability		Master's degree program M.Sc. Biology	

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

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

U. Weich