

Module variant to: Topics in Microbiology

Module: Methods of functional genomic research of bacteria			
University/Department/Teaching Unit: Freie Universität Berlin/Department of Biology, Chemistry, Pharmacy/Biology			
Module coordinator: Haike Antelmann			
Prerequisites: none			
<p>Learning objectives: The module provides a wide range of in-depth knowledge of methods used for the functional genomic research of bacteria including subsequent detailed molecular approaches. In particular, in-depth knowledge of modern methods of genomics, transcriptomics, proteomics and their applications in bacteria are subjects of the lectures, including molecular transcriptional and protein-protein interaction methods. In addition, literature seminars are held with lectures by students on current topics of functional genomics research of bacteria and microbial physiology. After completing the module, the students are able to recognize, formulate and discuss specific research questions and apply large-scale multi-omics approaches to experimentally analyse the microbial genomes, transcriptomes and proteomes for systems biology analyses.</p>			
<p>Content: Microbial model organisms and pathogenic bacteria; methods of infection biology; methods of microbial genomics, proteomics and transcriptomics; Discussion of current original and overview literature using presentations by the students.</p>			
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	Preparation of scientific work relevant to the presentation, participation in the discussion and question sections	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		one 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