Module variant to: Advanced Molecular Plant Science

Module: Physiology of plant adaptation and acclimation to a variable environment	
University/Department/Teaching Unit: Freie Universität Berlin/Department of Biology, Chemistry, Pharmacy/Biology	
Module coordinator: Margarete Baier	
Prerequisites: none	
Learning objectives: Students will possess advanced theoretical and practical skills for assessing the effects of environmental parameters on plants. They will get familiar with sensitivity modulations in distinct organisms (acclimatization, hardening, priming) and genetic manifestation of diversity (adaptation). They will be able to apply physiological-biochemical, molecular biological, and genetic methods to analyze plant responses to environmental parameters, document data scientifically, interpret the results, discuss them in the context of the current state of literature, and present them professionally.	
Content: In the lecture, the seminar and the practical parts, current questions of plant stress physiology, signal transduction and environmental sensing are addressed as well as more complex topics of plant adaptation and acclimatization, i.e. questions arising in connection with climate change.	

Modes of instruction	**Contact hours** (hours per week during the semester)	**Types of active participation**	**Workload** (in hours)	
Lecture (V)	2	–	Class attendance (lecture) Preparation, before and after (lecture)	30 60
Seminar (S)	1	Presentation and discussion	Class attendance (seminar) Preparation, before and after (seminar)	15 50
Sicherheitsrelevantes Praktikum (SPC)	5	Report on independently conducted data analysis in the form of a methods and results section of a scientific article	Class attendance (SPC) Preparation, before and after (SPC) Exam preparation and exam	75 30 40

Module assessment	Written report on research results (approx. 10 pages) or examination colloquium (approx. 20 minutes)	
Language	English	
Regular attendance required	Seminar and PC-based seminar: yes, lecture: attendance recommended	
Total workload	450 hours	10 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	x
Genetics and Genomics	x
Microbiology	
Molecular- and Cellular Biology	x
Molecular Plant Sciences	x
Neurobiology	
Biology	x