

Module Name Microbial Genetics						
Type of Module ○ Advanced Module				Module Code Microbial Genetics		
Identification Number	Workload	Credit Points	Term	Offered Every	Start	Duration
MN-B-SM (G 4)	360 h	12 CP	2 nd term of studying	Summer term, 2 nd half	Summer term only	7 weeks
1	Course Types		Contact Time		Private Study	
	a) Lectures		10 h		50 h	
	b) Practical/Lab		180 h		80 h	
	c) Seminar		10 h		30 h	
2	Module Objectives and Skills to be Acquired Students who successfully completed this module <ul style="list-style-type: none"> • have acquired detailed knowledge of microbial genetics and the cellular repertoire of Yeast (<i>Saccharomyces cerevisiae</i>) and <i>Escherichia coli</i> to regulate gene and protein function as well as to respond to stress and environmental signals operating at different levels in the cell from gene expression to protein function and signaling. • are able to address a scientific question related to the topic of the module by independently planning and conducting an experimental project, including choice of accurate methods, appropriate data compilation, accurate documentation of experiments as well as analysis and interpretation. • have learned how to present research results in oral and written form and to critically discuss scientific publications related to the topic of the module on a professional level. • are able to transfer skills acquired in this module to other fields of biology. 					
3	Module Content <ul style="list-style-type: none"> • Planning and conduction of an individual project (in teams of 2 to 3 students) • Methods of gene targeting and site-directed mutagenesis • Analysis of transcriptional and post-transcriptional regulation • Analysis of protein-protein interaction and protein photo-crosslinking • Characterization of post-translational regulation of protein function and selective protein degradation • Standard molecular genetic techniques (cloning, protein expression, sequencing, etc.) • Selection and characterization of mutants 					
4	Teaching Methods <ul style="list-style-type: none"> • Lectures; Practical/Lab (Project work); Seminar; Guidance to independent research; Training on presentation techniques in oral and written form 					

5	Prerequisites (for the Module) Enrollment in the Master's of Science degree course "Genetics and Biology of Aging and Regeneration" Additional academic requirements Previous attendance of the lecture module Principles of Molecular Genetics, Development and Aging
6	Type of Examination The final examination consists of two parts: One hour written examination on topics of lectures, seminars and the practical/lab part (50 % of the total module mark), oral presentation (20-30 min; 50 % of the total module mark)
7	Credits Awarded Regular and active participation; Each examination part at least "sufficient" (see appendix of the examination regulations for details)
8	Compatibility with other Curricula* None
9	Proportion of Final Grade 12.0 %
10	Module Coordinator Prof. Dr. Karin Schnetz, phone 470 3815, e-mail: schnetz@uni-koeln.de
11	Further Information Participating faculty: Prof. Dr. J. Dohmen, Prof. Dr. K. Schnetz Literature: <ul style="list-style-type: none">Information on recommended textbooks and other reading material will be given on the ILIAS representation of the course (see https://www.ilias.uni-koeln.de/ilias/goto_uk_cat_2815610.html) General time schedule: Week 1-6 (Mon.-Fri.): Lectures/tutorials and practical/lab (daily from approximately 9 a.m. to 5 p.m. including lunch break, times may vary depending on practical/lab work), preparation for the seminar talk (held at the end of week 5); Week 7 (Mon.-Fri.): Preparation for the written examination Note: The module contains hand-on laboratory work conducted by small groups of students and is taught in course rooms. Introduction to the module: Tuesday, May 28, 2024 at 1 p.m., Center for Molecular Biosciences (COMB), seminar room 0.01 (ground floor); for preparation to the module before this introduction see ILIAS link under literature. Written examination: July 19, 2024, second/supplementary examination August 30, 2024; the latter date may vary if students and module coordinator agree. More details will be given at the beginning of the module.