

Module Name Microbial Genetics						
Type of Module ○ Advanced Module				Module Code Microbial Genetics		
Identification Number MN-B-SM (G 4)	Workload 360 h	Credit Points 12 CP	Term 2 nd term of studying	Offered Every Summer term	Start summer term only	Duration 7 weeks
1	Course Types a) Lectures b) Practical/Lab c) Seminar		Contact Time 10 h 180 h 10 h	Private Study 50 h 80 h 30 h	Planned Group Size max. 8 max. 2-3 max. 1	
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 of <i>Escherichia coli</i> and Yeast (<i>Saccharomyces cerevisiae</i>), of mechanisms of these microorganisms to adjust gene expression and protein function, and the cellular repertoire to sense and respond to stress and environmental signals including immunity-like defence systems (bacteria) • 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, data documentation and compilation of experiments, and data analysis and interpretation. • have learned how to document and compile research results and to present them 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, selection and characterization of mutants • Analysis of transcriptional and post-transcriptional regulation • Analysis of protein-protein interaction • Analysis of post-translational regulation of protein function and selective protein degradation • Standard molecular genetic techniques (cloning, protein expression, sequencing, etc.) 					
4	Teaching Methods Lectures; Practical/Lab (Project work); Seminar; Guidance to independent research; Training on presentation techniques in oral and written form					

5	<p>Prerequisites (for the Module)</p> <p>Enrollment in the Master's degree course "Biological Sciences"</p> <p>Additional academic requirements</p> <p>Previous attendance of the lecture module "Principles of Molecular Genetics, Development and Aging (A/D/G)".</p>
6	<p>Type of Examination</p> <p>The final examination consists of two parts: written examination on topics of lectures, seminars and the practical/lab part (1 hour; 50 % of the total module mark), oral presentation (20-30 min; 50 % of the total module mark)</p>
7	<p>Credits Awarded</p> <p>Regular and active participation; Each examination part at least "sufficient" (see appendix of the examination regulations for details)</p>
8	<p>Compatibility with other Curricula</p> <p>None</p>
9	<p>Proportion of Final Grade</p> <p>12 % of the overall grade (see also appendix of the examination regulations)</p>
10	<p>Module Coordinator</p> <p>Prof. Dr. Karin Schnetz, phone 470-3815, e-mail: schnetz@uni-koeln.de</p>
11	<p>Further Information</p> <p>Subject module of the Master's degree course "Biological Sciences", Specialization: (G) Molecular and Developmental Genetics</p> <p>Participating faculty: Prof. Dr. J. Dohmen, Prof. Dr. K. Schnetz</p> <p>Literature: Information about textbooks and other reading material will be given on the ILIAS representation of the course (https://www.ilias.uni-koeln.de/ilias/goto_uk_cat_2815610.html)</p> <p>General time schedule: Week 1-6 (Mon.-Fri. 22.05. – 26.05. and 05.06. – 07.07.23): Lectures/tutorials and practical/lab including documentation of the lab work in the electronic lab-book eLab and writing of a summary of the research (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 6); Week 7 (Mon.-Fri.): Preparation for the written examination</p> <p>Note: The module contains hand-on laboratory work conducted by small groups of students and is taught in course rooms.</p> <p>Introduction to the module: Wednesday, May 17, 2023 at 10 a.m., Center for Molecular Biosciences (COMB), seminar room 0.46 (ground floor); for preparation to the module before this introduction see ILIAS link under literature.</p> <p>Written examination: July 14, 2023, second/supplementary examination August 25, 2023; the latter date may vary if students and module coordinator agree. More details will be given at the beginning of the module.</p>