

Microbial Genetics					
Identification number	Workload	Credit points	Term of studying	Frequency of occurrence	Duration
MN-B-SM (G 7)	360 h	12 CP	1 <sup>st</sup> or 2 <sup>nd</sup> term of studying	Winter term, 1 <sup>st</sup> half	7 weeks
<b>1</b>	<b>Type of lessons</b>		<b>Contact times</b>	<b>Self-study times</b>	<b>Intended group size</b>
	a) Lectures/Tutorial		10 h	50 h	max. 12
	b) Practical/Lab		180 h	80 h	max. 2-3
	c) Seminar		10 h	30 h	max. 1-2
<b>2</b>	<b>Aims of the module and acquired skills</b> Students who successfully completed this module ... <ul style="list-style-type: none"> <li>• have acquired detailed knowledge of microbial genetics and the cellular repertoire of Yeast (<i>Saccharomyces cerevisiae</i>) and <i>Escherichia colto</i> 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.</li> <li>• 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.</li> <li>• 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.</li> <li>• are able to transfer skills acquired in this module to other fields of biology.</li> </ul>				
<b>3</b>	<b>Contents of the module</b> <ul style="list-style-type: none"> <li>• Planning and conduction of an individual project (in teams of 2 to 3 students)</li> <li>• Methods of gene targeting and site-directed mutagenesis</li> <li>• Analysis of transcriptional and post-transcriptional regulation</li> <li>• Analysis of protein-protein interaction and protein photo-crosslinking</li> <li>• Characterization of post-translational regulation of protein function and selective protein degradation</li> <li>• Standard molecular genetic techniques (cloning, protein expression, sequencing, etc.)</li> <li>• Selection and characterization of mutants</li> </ul>				
<b>4</b>	<b>Teaching/Learning methods</b> <ul style="list-style-type: none"> <li>• Lectures; Practical/Lab (Project work); Seminar; Guidance to independent research; Training on presentation techniques in oral and written form</li> </ul>				
<b>5</b>	<b>Requirements for participation</b> Enrollment in the Master´s degree course "Biological Sciences"				
<b>6</b>	<b>Type of module examinations</b> The final examination consists of three parts: Two hours written examination about topics of the lectures/tutorials (50 % of the total module mark), oral presentation (25 % of the total module mark), and seminar paper (25 % of the total module mark).				

7	<b>Requisites for the allocation of credits</b> Regular and active participation; Each examination part at least "sufficient" (see appendix of the examination regulations for details)
8	<b>Compatibility with other Curricula</b> None
9	<b>Significance of the module mark for the overall grade</b> 15 % of the overall grade (see also appendix of the examination regulations)
10	<b>Module coordinator</b> Prof. Dr. Karin Schnetz, phone 470-3815, e-mail: schnetz@uni-koeln.de
11	<b>Additional information</b> <b>Subject module</b> of the Master´s degree course "Biological Sciences", <b>Focus of research:</b> (G) Genetics and Cell Biology <b>Participating faculty:</b> Prof. Dr. J. Dohmen, Prof. Dr. K. Schnetz <b>Literature:</b> A list of literature that should be used for preparation to the module can be obtained from <a href="https://www.ilias.uni-koeln.de/">https://www.ilias.uni-koeln.de/</a> under [WS19/20] Microbial Genetics <b>General time schedule:</b> 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), writing reports about the project studies and preparation for the seminar talk (held at the end of week 6); Week 7 (Mon.-Fri.): Preparation for the written examination <b>Note:</b> The module contains hand-on laboratory work conducted by small groups of students and is taught in course rooms. The module does not contain computer-based practical/ research as a main component. <b>Introduction to the module:</b> October 02, 2019 at 11 a.m., Center for Molecular Biosciences (COMB), seminar room 0.46 (ground floor) <b>Written examination:</b> November 22, 2019, second/supplementary examination February 14, 2020; the latter date may vary if students and module coordinator agree. More details will be given at the beginning of the module.