

<b>Module Name</b> Functional Genomics						
<b>Type of Module</b> ○ Advanced Module				<b>Module Code</b> Functional Genomics		
<b>Identification Number</b> MN-B-SM (A 4)	<b>Workload</b> 360 h	<b>Credit Points</b> 12 CP	<b>Term</b> 2 <sup>nd</sup> term of studying	<b>Offered Every</b> Summer term	<b>Start</b> summer term only	<b>Duration</b> 7 weeks
<b>1</b>	<b>Course Types</b> a) Lectures b) Practical/Lab c) Seminar		<b>Contact Time</b> 22 h 150 h 8 h	<b>Private Study</b> 50 h 100 h 30 h	<b>Planned Group Size*</b> max. 12 max. 2 max. 2	
<b>2</b>	<b>Module Objectives and Skills to be Acquired</b> Students who successfully completed this module <ul style="list-style-type: none"> <li>• genome regulation in physiology and disease.</li> <li>• have acquired experimental skills in state-of-the art methods in genomics, cell biology and molecular biology and can independently carry out small scientific projects related to the topic of the module.</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>Module Content</b> <ul style="list-style-type: none"> <li>• Regulation of nuclear and chromatin architecture</li> <li>• Epigenetic regulation of gene expression</li> <li>• Principles of transcriptional regulation</li> <li>• Identification of longevity genes</li> <li>• Next generation sequencing methods for genomic analyses</li> <li>• Genetic screening</li> <li>• Genetic reprogramming</li> <li>• Chromatin immunoprecipitation</li> <li>• Cloning methods</li> <li>• Cell biology, immunological staining methods, microscopy</li> <li>• DNA repair</li> </ul>					
<b>4</b>	<b>Teaching Methods</b> Lectures; Practical/Lab (Project work); Seminar; Guidance to independent research; Training on presentation techniques in oral and written form					

5	<p><b>Prerequisites (for the Module)</b></p> <p>Enrollment in the Master´s degree course “Biological Sciences” or in the Master´s degree course “Biochemistry”.</p> <p><b>Additional academic requirements</b></p> <p>Previous attendance of the lecture module “Principles of Molecular Genetics, Development and Aging (A/D/G)”.</p>
6	<p><b>Type of Examination</b></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><b>Credits Awarded</b></p> <p>Regular and active participation Each examination part at least “sufficient” (see appendix of the examination regulations for details)</p>
8	<p><b>Compatibility with other Curricula*</b></p> <p>Biological subject module in the Master´s degree course “Biochemistry”</p>
9	<p><b>Proportion of Final Grade</b></p> <p>In the Master´s degree course “Biological Sciences”: 15 % of the overall grade (see also appendix of the examination regulations)</p>
10	<p><b>Module Coordinator</b></p> <p>Dr. Peter Tessarz, phone 379 70680, e-mail: ptessarz@age.mpg.de</p>
11	<p><b>Further Information</b></p> <p><b>Subject module</b> of the Master´s degree course “Biological Sciences”, <b>Specialization:</b> (A) Mechanisms of Aging and Aging Associated Diseases</p> <p><b>Participating faculty:</b> Dr. J. Deelen, Dr. S. Panier, Dr. H. Bazzi, Dr. L. Kurian, Dr. L. Pernas, Dr. S. Steculorum, Dr. P. Tessarz</p> <p><b>Literature:</b> Information about textbooks and other reading material will be given on the ILIAS representation of the course (<a href="https://www.ilias.uni-koeln.de/ilias/goto_uk_cat_2815610.html">https://www.ilias.uni-koeln.de/ilias/goto_uk_cat_2815610.html</a>)</p> <p><b>General time schedule:</b> Week 1 (Mon.-Fri.): Introduction to Functional Genomics (lectures), safety lecture and lab projects; Week 2-6 (Mon.-Fri.): Lectures, seminars and lab projects; Week 7 (Mon.-Fri): Preparation for the written examination</p> <p><b>Note:</b> The module contains hand-on laboratory work conducted individually and is taught in research laboratories. The module does not contain computer-based practicals/research as a main component.</p> <p><b>Introduction to the module:</b> May 16, 2022 at 9:00 a.m., MPI Age, Joseph-Stelzmann-Str. 9 b, 50931 Köln, seminar room 1 (ground floor) or online (in this case, further information/link will be sent to your Smail-Account); for preparation to the module before this introduction see ILIAS link under literature.</p> <p><b>Written examination:</b> July 15, 2022, second/supplementary examination August 26, 2022; the latter date may vary if students and module coordinator agree. More details will be given at the beginning of the module.</p>

\* 10 students from the Master´s degree course “Biological Sciences” and 2 students from the Master´s degree course “Biochemistry”.