

<b>Module Name</b> Functional Genomics						
<b>Identification Number</b>	<b>Workload</b>	<b>Credit Points</b>	<b>Term</b>	<b>Offered Every</b>	<b>Start</b>	<b>Duration</b>
MN-BC-GSM03	360 h	12 CP	1 <sup>st</sup> or 2 <sup>nd</sup> term of studying	Summer term	summer term only	7 weeks
<b>1</b>	<b>Course Types</b>		<b>Contact Time</b>	<b>Private Study</b>	<b>Planned Group Size*</b>	
	a) Lectures		22 h	50 h	max. 12	
	b) Practical/Lab		150 h	100 h	max. 2	
	c) Seminar		8 h	30 h	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 and characterisation of genetic variants</li> <li>• Next generation sequencing methods for genomic analyses</li> <li>• Genome editing</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					
<b>5</b>	<b>Prerequisites (for the Module)</b>					
	Enrollment in the Master's degree course "Biological Sciences" or in the Master's degree course "Biochemistry and Molecular Medicine".					
	<b>Additional academic requirements</b>					
	For Students of Master "Biological Sciences": Previous attendance of the lecture module "Principles of Molecular Genetics, Development and Aging (A/D/G)".					

6	<p><b>Type of Examination</b></p> <p>The final examination consists of two parts (Type BC1):</p> <p>Type 1: 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; Passed seminar paper; 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 "Biological Sciences"</p>
9	<p><b>Proportion of Final Grade</b></p> <p>In the Master's degree course "Biochemistry and Molecular Medicine": 10 % of the overall grade (see also appendix of the examination regulations)</p>
10	<p><b>Module Coordinator</b></p> <p>Dr. Joris Deelen, phone: +49 (0)221 379 70 480, e-mail: <a href="mailto:Joris.Deelen@age.mpg.de">Joris.Deelen@age.mpg.de</a></p> <p>Dr. Stephanie Panier, phone: +49 (0)221 379 70 591, e-mail: <a href="mailto:panier@age.mpg.de">panier@age.mpg.de</a></p>
11	<p><b>Further Information</b></p> <p><b>Participating faculty:</b> Dr. J. Deelen, Dr. S. Panier, Dr. S. Steculorum, Dr. I. Huppertz, Dr. V. Piano, Dr. G. Storelli, Dr. J. Reznick, Dr. A. Stangherlin, Dr. P. Antczak, Dr. S. Pöpsel, Dr. D. Trentini Schmidt, Dr. M. de las Nieves Peltzer, Dr. Z. Frentz</p> <p><b>Literature:</b> Information about textbooks and other reading material will be given on the ILIAS representation of the course</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> June 3, 2024 at 10:00 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>Oral or Written examination:</b> 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.</p>

\* 10 students from the Master's degree course "Biological Sciences" and 2 students from the Master's degree course "Biochemistry and Molecular Medicine".