

Module Name Functional Genomics						
Type of Module ○ Advanced Module				Module Code Functional Genomics		
Identification Number MN-B-SM (A 4)	Workload 360 h	Credit Points 12 CP	Term 2 nd term of studying	Offered Every Summer term, 2 nd half	Start Summer term only	Duration 7 weeks
1	Course Types a) Lectures b) Practical/Lab c) Seminar		Contact Time 22 h 150 h 8 h		Private Study 50 h 100 h 30 h	
2	Module Objectives and Skills to be Acquired Students who successfully completed this module <ul style="list-style-type: none"> • genome regulation in physiology and disease. • 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. • 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"> • Regulation of nuclear and chromatin architecture • Epigenetic regulation of gene expression • Principles of transcriptional regulation • Identification and characterisation of genetic variants • Next generation sequencing methods for genomic analyses • Genome editing • Genetic screening • Genetic reprogramming • Chromatin immunoprecipitation • Cloning methods • Cell biology, immunological staining methods, microscopy • DNA repair 					
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	<p>Prerequisites (for the Module)</p> <p>Enrollment in the Master's of Science degree course "Genetics and Biology of Aging and Regeneration" or in the Master's degree course "Biochemistry and Molecular Medicine"</p> <p>Additional academic requirements</p> <p>Previous attendance of the lecture module Principles of Molecular Genetics, Development and Aging</p>
6	<p>Type of Examination</p> <p>The final examination consists of two parts: One hour written examination on topics of lectures and seminars (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>Optional compulsory module in the Master's degree course "Biochemistry and Molecular Medicine"</p>
9	<p>Proportion of Final Grade</p> <p>12.0 %</p>
10	<p>Module Coordinator</p> <p>Dr. Joris Deelen, +49 (0)221 379 70 480, e-mail: Joris.Deelen@age.mpg.de</p>
11	<p>Further Information</p> <p>Participating faculty: 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>Literature:</p> <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) <p>General time schedule: 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>Note: 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>Introduction to the module: 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>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.</p>