

Module Name Seminar Modern Techniques and Approaches in Genetics, Aging and Regeneration						
Type of Module ○ Basic Module				Module Code Genetics Seminar		
Identification Number MN-B-A 2	Workload 180 h	Credit Points 6 CP	Term 1 st term of studying	Offered Every Winter term	Start Winter term only	Duration 1 term
1	Course Types Seminar (incl. Tutorial)		Contact Time 60 h	Private Study 120 h		Planned Group Size 45
2	Module Objectives and Skills to be Acquired Students who successfully completed this module <ul style="list-style-type: none"> • have acquired detailed knowledge about the concepts of state-of-the-art methods of functional genomics, genetics, cell and molecular biology and imaging, and their applications to study and understand cell and tissue functions in physiology and disease. • are able to develop strategies on how to solve scientific questions in the field of genetics, aging and regeneration research, including choice of accurate methods, appropriate data analysis and processing of data for publication. • 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 and apply knowledge and skills acquired in this module to wet-lab settings and related scientific fields. 					
3	Module Content <ul style="list-style-type: none"> • Cloning strategies • Regulation of nuclear and chromatin architecture • Transcriptional and post-transcriptional regulation, post-translational regulation by protein modification • Spatial control of protein localization • Selective proteolysis and protein quality control • Methods for genomic and proteomic analyses • Principles of genome engineering, genetic screens, and mutant selection in model organisms • Microscopy techniques, immunological staining methods • Fate decisions and functional identity • Addressing and solving scientific problems 					
4	Teaching Methods <ul style="list-style-type: none"> • Interactive tutorials; Seminar; Group discussions, Guidance to independent research, Training on presentation techniques in oral and written form 					
5	Prerequisites (for the Module)					

	Enrollment in the Master's degree program "Genetics and Biology of Aging and Regeneration"; Simultaneous participation in the lecture module "Principles of Molecular Genetics, Development and Aging"
6	Type of Examination Oral presentation with written compilation (100 % of the total module mark)
7	Credits Awarded Regular and active participation; Examination at least "sufficient"
8	Compatibility with other Curricula None
9	Proportion of Final Grade 7.5 %
10	Module Coordinator Prof. Dr. Niels Gehring, phone 470 3873, e-mail: ngehring@uni-koeln.de
11	<p>Further Information</p> <p>Participating faculty: Professors, group leaders, and senior scientists of the Cologne Excellence Cluster on Cellular Stress Responses in Aging-Associated Diseases (CECAD), Institute for Genetics and Zoology, and invited guest speakers.</p> <p>Literature:</p> <ul style="list-style-type: none"> 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>General time schedule: Weeks 1-14: Seminars/tutorials and oral presentations (starting at 2:00 p.m. at different dates, more details will be given in the introduction to the module).</p> <p>Introduction to the module: October 10, 2023 at 2:00 p.m., lecture hall 4th floor (room 4.30), CoMB building, Zulpicher Str. 47a, 50674 Cologne (further information/link will be sent to your Smail-Account); for preparation to the module before this introduction see ILIAS link under literature.</p>