

HOW CAN WE SLOW DOWN  
THE INDIVIDUAL AGING PROCESS  
AND EXTEND THE HEALTHY  
SPAN OF LIFE?

# MASTER Biology

JOHANNES GUTENBERG  
UNIVERSITÄT MAINZ



## 4 Master Thesis

WHAT DOES THE ANALYSIS OF  
PREHISTORIC GENOMES TELL US  
ABOUT THE SETTLEMENT HISTORY  
OF EUROPE?

## 3 Extended Qualifications

Project work

## 2 Modules A+B | C

## 1 Modules A+B | C

Compulsory Elective  
Modules from the focus  
areas

- » Organismic and  
Molecular Evolutionary  
Biology,
- » Developmental Biology  
and Neurobiology,
- » Molecular Physiology

are freely selectable.  
You are given the  
opportunity to study  
according to your  
**individual interests** and  
to take a broad approach of  
content and methodology.  
Alternatively, you can  
study **focused in one or  
two specialisations**.

## MODULES PER TERM

**TARGET GROUP** | Are you interested in a research-intensive activity in the life sciences? Would you like to study a broad range of subjects and methods or rather focus on one or two main areas of study with a very individual combination of sub-disciplines? Then this study program is exactly the right one for you!

**PROFESSIONAL PERSPECTIVES** | With an M.Sc. in Biology you will acquire the skills for independent, scientific work with the modern repertoire of methods of your chosen sub-disciplines, such as those required for a doctorate and numerous occupational fields in industry and public authorities. Have you become curious?

**ADMISSION REQUIREMENTS** | A bachelor's degree in Biology, Molecular Biology or an equivalent subject. English language skills are required (without proof) for subject reading and for the choice of English-language modules. If you have neither acquired your university entrance qualification at a German institution nor a degree in a German-language course of study, proof of German language skills at the level of the "Dt. Sprachprüfung für den Hochschulzugang" (DSH) is required.

**STUDY PLAN** | Teaching is predominantly project-oriented and requires your independent work early in your studies. You will study two sub-disciplines of your choice in depth with the subject-specific basics, methodical practical courses and individual projects; you will get to know two further sub-disciplines of your choice through lectures and seminars. An overview of the modules and the study plan are shown on the left.

[https://www.blogs.uni-mainz.de/fb10-biologie-eng/  
masters-degree-programs/master-in-biology-m-sc](https://www.blogs.uni-mainz.de/fb10-biologie-eng/masters-degree-programs/master-in-biology-m-sc)

## CONTACT & E-MAIL |

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SCAN ME



Are you an ERASMUS  
STUDENT? You have  
the option to choose  
exclusively English-  
speaking modules!





WHAT ROLE DOES GENE REGULATION PLAY IN THE EMERGENCE AND DYNAMICS OF THE DIVISION OF LABOR IN SOCIAL INSECTS?

HOW CAN UNDERSTANDING CELL BIOLOGICAL PROCESSES HELP TO PREVENT AND CURE TUMORS?

HOW CAN WE UNDERSTAND THE NERVOUS SYSTEM AND THE HUMAN BRAIN USING MODEL ANIMALS?

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**Organismic & Molecular Evolutionary Biology** | Explore current topics like: What is the role of gene regulation in the emergence and dynamics of division of labor in social insects? What does the analysis of prehistoric genomes tell us about the colonization history of Europe? How can computational methods and data mining be used to understand the molecular causes of human diseases and develop cures? How can research on cancer- and aging-resistant rodents help us to live healthier for longer?

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**Developmental Biology & Neurobiology** | Conduct research on current questions like: How can we slow the aging process of individuals so that the healthy span of life becomes longer? How are synapses in learning modified at the level of molecules and protein complexes to create lifelong memories? How can the fly *Drosophila* help us understand the complex human nervous system and brain?

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Use the latest research methods such as next generation sequencing or super-resolution light microscopy in CORE FACILITY modules.



Collaborate on cutting-edge questions in epigenetics, DNA repair, or genome stability in IMB modules.



**Molecular Physiology** | Delve into topics like: How can understanding of cell biological processes help to prevent and cure tumor diseases? What mechanisms can plants use to regulate their protein levels to survive drought or heat stress? How can membraneless organelles help us create artificial proteins in cells for basic biomedical research? Why do we need to understand the work of tiny cellular processes called cilia to understand blindness and deafness in Usher syndrome or other neuronal diseases?

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