

Elective Modules

Neurophysiology of Sensory Systems
Physiology and Behaviour
3-D Cell Cultures and 3-D Microscopy
3-D Developmental Biology and 3-D Microscopy
3-D Plant Cell Biology and 3-D Microscopy
Plant Cell Biology
Fungal Cell Biology
Function and Evolution of Metabolic Pathways
Special Aspects of Immunology
Developmental Genetics
Cell Biology and Gene Expression Control
Endothelial Cells and Tumor Cell Biology
Principles of Tube Morphogenesis
Developmental Cell Biology
Basics and Appliaance of Image and Data Analysis in Biology
Biology of Extracellular Vesicles
Special Aspects of Tumor Biology
Cellular RNA Biology
Auditory Function and Dysfunction: Behaviour and Physiology
Information Processing in the Central Auditory System
Neuronal basis of acoustic communication in mammals
Cellular, molecular and systemic Neurobiology in mouse and zebrafisch

Exemplary Degree Course Scheme/ Admission Requirements

Term	Module	Module
1 – Winter	comp.	Introduction into the Master Program and Basic Methods in Cell Biology
	comp.	Advanced Cell Biology I
	optional	Elective Module – 1
2 – Summer	comp.	Advanced Cell Biology II
	optional	Elective Module – 2
	optional	Elective Module – 3
3 – Winter	comp.	Current Concepts in Cell Biology
	comp.	Advanced Methods in Cell Biology
4 – Summer	comp.	Master Thesis

Students entering the graduate program should have a Bachelor's degree in the same or a related subject, or - at least - an equivalent degree from another university of applied sciences in the same or similar subject.

The Master Program starts only in winter term!
Deadline for application: July 15

Information for application can be found at:
[www.bio.uni-frankfurt.de / 422 725 05 /MSc-PBioC](http://www.bio.uni-frankfurt.de/42272505/MSc-PBioC)

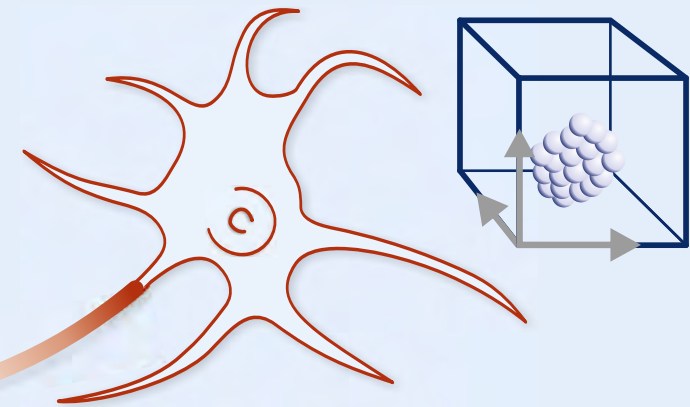
Program Director

Prof. Dr. Anna Starzinski-Powitz

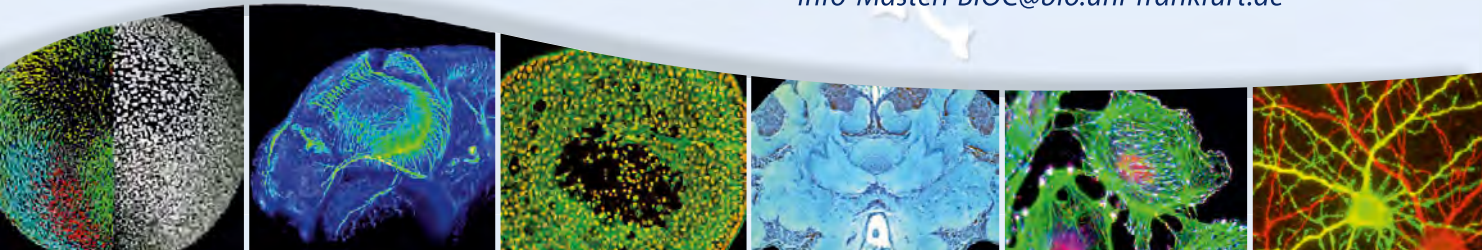
Master Coordination and Course Guidance

Dr. Ulrike Kaufmann-Reiche
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MASTER MSc Physical Biology of Cells and Cell Interactions



**Institut für Zellbiologie
und Neurowissenschaft**



Program Description

The Master Program in **Physical Biology of Cells and Cell Interactions** coordinated by the **Institute for Cell Biology and Neuroscience** is research-oriented and educates students in modern concepts and methods of cell biology and physical biology.

Scientific questions in the fields of cell biology and physical biology will be combined with developmental biology, cellular structure biology, bioinformatics, biochemistry, immunology, neuro- and plant physiology.

The Master's program provides students with an understanding of fundamental life processes from cell growth, cell-cell communication and differentiation to hormonal, inflammatory, angiogenic signaling and aging. These processes are studied in context of cells, individual tissues and model organisms. The experimental and conceptual approaches of the program include modern cell biological, molecular, biochemical, bioinformatical, immunological and genetic methods, combined with various microscopical techniques and applications, molecular imaging, data analysis as well as morphological and physiological technologies.

The Master Program consists of **6 compulsory** and **3 elective modules** in order to allow an interdisciplinary education. These may be combined with selective modules from other master programs of the faculty.

Participating Groups

Institute for Cell Biology and Neuroscience

Molecular and Cellular Neurobiology
Prof. Dr. Amparo Acker-Palmer

Applied Bioinformatics
Prof. Dr. Ingo Ebersberger

Neurobiology of the Honeybee
Prof. Dr. Bernd Grünewald

Sensory Neurobiology
Prof. Dr. Manfred Kössl/PD Dr. Bernhard Gaese

Cellular Developmental Biology of Vertebrates
Prof. Dr. Virginie Lecaudey

RNA Regulation in Higher Eukaryotes
Jun. Prof. Dr. Michaela Müller-McNicoll

Molecular Cell Biology and Human Genetics
Prof. Dr. Anna Starzinski-Powitz

Physical Biology
Prof. Dr. Ernst H. K. Stelzer

Neurochemistry
Prof. Dr. Walter Volkhardt

Institute for Molecular Bio Sciences

Molecular Developmental Biology
Prof. Dr. Heinz D. Osiewacz

Molecular Cell Biology of Plants
Prof. Dr. Enrico Schleiff

University Cancer Center (FB16)

Targeting Cell Cycle Kinases in Cancer Therapy
Prof. Dr. Klaus Strebhardt

Participating Groups

Neuroscience Center (Edinger Institute)

Restorative Neurology
Dr. Stefan Momma

Max-Planck-Institute for Heart and Lung Research

Department of Pharmacology
Dr. Boris Strlic

Developmental Genetics
Prof. Dr. Didier Stainier

Cell Polarity and Organogenesis
Dr. Masanori Nakayama

Georg Speyer Haus – Institute for Tumor Biology and Experimental Therapy

Stem Cell Biology and Stem Cell Therapy
Dr. Jörn Lausen

Paul-Ehrlich-Institute

Novel Vaccination Strategies and Early Immune Responses
PD Dr. Zoe Waibler

Program Objectives

- Performance of interdisciplinary science and acquisition of self-dependent scientific action and thinking.
- Adjustment to a new job, independent advancement in the area of expertise and expanding career opportunities in: bioinformatics, bio-pharmaceutical research, scientific management, biotechnology and marketing.

