



Developmental, Neural, and Behavioral Biology

MSc/PhD Program in Göttingen, Germany

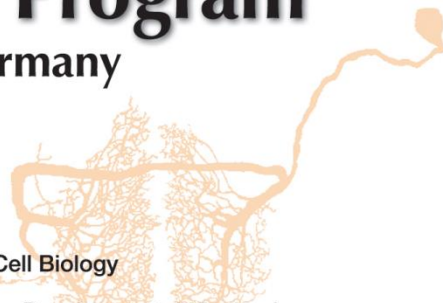
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- Cell Biology
 - Developmental Mechanisms
 - Molecular Neurobiology
 - Systems Neurosciences
 - Behavioral Ecology
 - Animal Cognition



Foto: Drosophila, Jürgen Berger, Max-Planck-Institut für Entwicklungsbiologie

Deadline for your application is May 15th
Start of the program is October 1st
www.biologie.uni-goettingen.de/msc_dnb

GEORG-AUGUST-UNIVERSITÄT GÖTTINGEN



Master „Developmental, Neural, and Behavioral Biology“



module	number	structure and options	C/module	C total
core modules	3	lecture + seminar + methods course choice of 10 different modules	12	36
profile module	1	additional core module DNB core module MLS interdisciplinary courses*	12	12
key competence modules		course offer 'ZESS' course offer 'DNB, MLS, CoBi or BEEC' interdisciplinary courses*	2-6	12
advanced modules	2	7-9 weeks lab course	12	30
	1	scientific project management	6	
	common examination of advanced modules			
Master thesis (26 weeks)				30

* Permission of examination board required

120

Core Modules – Fachmodule



core modules (12 C)

5 week block courses

Developmental and Cell Biology			Neurobiology		Behavioral Biology			Bioinformatics	
M.Bio.303	M.Bio.321	M.Bio.322	M.Bio.304	M.Bio.305	M.Bio.306	M.Bio.307	M.Bio.308	M.Bio.310	M.Bio.323
<i>Cell Biology</i>	<i>Current developmental biology</i>	<i>Frontiers in neural development</i>	<i>Neurobiology 1</i>	<i>Neurobiology 2</i>	<i>Introduction to behavioral biology</i>	<i>Behavioral biology</i>	<i>Social behavior and communication</i>	<i>Systems biology</i>	<i>Introduction to Bayesian Statistics and Information Theory</i>
lecture + seminar + methods course	lecture + seminar + methods course	lecture + seminar + methods course	lecture + methods course	lecture + methods course	lecture + seminar + methods course	lecture + seminar + methods course	lecture + seminar + methods course	lecture + seminar + practical training	lecture + seminar + practical training
winter term	winter term	summer term	winter term	summer term	winter term	summer term	summer term	summer term	winter term

Blockstruktur

Modullage in den Semestern



	Block 1	Block 2	Block 3
winter term	M.Bio.303: Cellbiology	M.Bio.304: Neurobiology 1	M.Bio.306: Introduction to behavioral biology
	M.Bio.323: Introduction to Bayesian Statistics		M.Bio.321: Current Developmental biology

	Block 1	Block 2	Block 3
summer term	M.Bio.305: Neurobiology 2	M.Bio.322: Frontiers in Neural Development	M.Bio. 307: Behavioral biology
		M.Bio.308: Social behavior and communication	
	**M.Bio.310: Systems biology		

** The practical part can be organized individually with advisor, continuous lecture and seminar

Bioinformatics	Developmental and Cell Biology	Neurobiology	Behavioral Biology
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Profile Module – Profilmodul

Key Skills – Kompetenzmodule



24 Credits to use freely – Freie Entfaltung

Key Skills – Kompetenzmodule



key competence modules: single components of core modules

(combination with associated core module is not possible)

M.Bio.343	M.Bio.363	M.Bio.392	M.Bio.393	M.Bio.394	M.Bio.395	M.Bio.344	M.Bio.346	M.Bio.366	M.Bio.347	M.Bio.340
<i>Cell biology</i>		<i>Current Developmental biology</i>		<i>Frontiers in Neural Development</i>		<i>Neuro-biology 1</i>	<i>Introduction to behavioral biology</i>		<i>Behavioral biology</i>	<i>Systems biology</i>
lecture + seminar	lecture	lecture + seminar	lecture	lecture + seminar	lecture	lecture	lecture + seminar	lecture	lecture + seminar	lecture + tutorial
6 C	3 C	6 C	3 C	6 C	3 C	3 C	6 C	3 C	6 C	3 C
winter term		winter term		summer term		winter term	winter term		summer term	

additional key competence modules

M.Bio.348	M.Bio.369	M.Bio.390	M.Bio.391	M.Bio.350	M.Bio.356	M.Bio.357	M.Bio.359	M.Bio.360	M.Bio.371	M.Bio.372	M.Bio.373	M.Bio.376	M.Bio.374	M.Bio.358
<i>Human genetics</i>		<i>Cellular & molecular immunology</i>		<i>From vision to action</i>	<i>Motor systems</i>		<i>Development and plasticity of the nervous system</i>		<i>Neurological and psychiatric diseases</i>	<i>Matlab in Biopsychology and Neuroscience</i>	<i>Visual Psychophysics - From Theory to Experiment</i>	<i>Laboratory animal course</i>	<i>Computational modelling and human cooperative behavior</i>	<i>Basic applied statistics</i>
lecture + seminar	lecture	lecture + seminar	lecture	lecture	lecture + seminar	lecture	lecture	seminar	seminar (block course)	lecture + tutorial	lecture + computer-training	e-Learning unit	seminar + computer-training (weekend course)	methods course (block course)
6 C	3 C	6 C	3 C	3 C	6 C	3 C	3 C	3 C	2 C	3 C	3 C	2 C	3 C	6 C
winter term		summer term		winter term	summer term		winter term		summer term	summer term	summer term	winter term	winter term	summer term

Profile Module – Profilmodul

Key Skills – Kompetenzmodule



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	common examination of advanced modules			
Master thesis (26 weeks)				30

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individual courses for each student: time frame has to be arranged with advisor

[illegible]

Modules required for specialization



main focus	modules		remarks
Cell and Developmental biology	Core modules	M.Bio.321: Current Developmental biology	obligatory module
		M.Bio.322: Frontiers in Neurodevelopment	one module obligatory, other recommended
		M.Bio.303: Cell biology	
	Advanced modules	M.Bio.381: Current developmental biology	Two out of these modules are obligatory
		M.Bio.382: Fontiers of developmental biology	
		M.Bio.383: Cell biology	
		M.Bio.319: Human genetics	
		M.Bio.380: Cellular and molecular immunology	
Master thesis	in department of one of the two selected advanced modules		

Neurobiology	Core modules	M.Bio.304: Neurobiology 1	both modules are obligatory
		M.Bio.305: Neurobiology 2	
	Advanced modules	M.Bio.314: Cellular Neurobiology	Two out of these modules are obligatory
		M.Bio.315: Molecular Neurobiology	
		M.Bio.316: Systemic Neurobiology	
		M.Bio.318: Social behavior, communication and cognition	
	Master thesis	in department of one of the two selected advanced modules	

Behavioral biology	Core modules	M.Bio.306: Introduction to behavioral biology	obligatory module
		M.Bio.307: Behavioral biology	one module obligatory, other recommended
		M.Bio.308: Social behavior and communication	
	Advanced modules	M.Bio.316: Systemic Neurobiology	Two out of these modules are obligatory
		M.Bio.317: Population and behavioral biology	
		M.Bio.318: Social behavior, communication and cognition	
	Master thesis	in department of one of the two selected advanced modules	

Cell and Developmental Biology



main focus	modules		remarks
Cell and Developmental biology	Core modules	M.Bio.321: Current Developmental biology	obligatory module
		M.Bio.322: Frontiers in Neurodevelopment	one module obligatory, other recommended
		M.Bio.303: Cell biology	
	Advanced modules	M.Bio.381: Current developmental biology	Two out of these modules are obligatory
		M.Bio.382: Fontiers of developmental biology	
		M.Bio.383: Cell biology	
		M.Bio.319: Human genetics	
		M.Bio.380: Cellular and molecular immunology	
	Master thesis	in department of one of the two selected advanced modules	

Neurobiology



Neurobiology	Core modules	M.Bio.304: Neurobiology 1	Both modules are obligatory
		M.Bio.305: Neurobiology 2	
	Advanced modules	M.Bio.314: Cellular Neurobiology	Two out of these modules are obligatory
		M.Bio.315: Molecular Neurobiology	
		M.Bio.316: Systemic Neurobiology	
		M.Bio.318: Social behavior, communication and cognition	
	Master thesis	in department of one of the two selected advanced modules	

Behavioral Biology



Behavioral biology	Core modules	M.Bio.306: Introduction to behavioral biology	obligatory module
		M.Bio.307: Behavioral biology	one module obligatory, other recommended
		M.Bio.308: Social behavior and communication	
	Advanced modules	M.Bio.316: Systemic Neurobiology	Two out of these modules are obligatory
		M.Bio.317: Population and behavioral biology	
		M.Bio.318: Social behavior, communication and cognition	
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Core Modules – Fachmodule

„From the Cell to Cognition“



core modules (12 C)

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Faculty

Johann-Friedrich-Blumenbach-Institute for Zoology and Anthropology



Cellular Neurobiology

Prof. Martin Göpfert

Prof. Ralf Heinrich

Molecular Neurobiology of Behaviour

Prof. Andre Fiala

Multiscale Biology

Prof. Dr. Jan Huisken

Systems Neurobiology

Prof. Dr. Siegrid Löwel

Evolutionary Developmental Genetics

Prof. Gregor Bucher

Developmental Biology

PD Dr. Gerd Vorbrüggen

Prof. Ernst A. Wimmer

Sociobiology & Anthropology

Prof. Peter Kappeler

Behavioural Ecology

Prof. Julia Ostner

Data-driven Analysis of Biological Networks

Prof. Michael Wibral



Faculty



Affective Neuroscience and Psychophysiology

Prof. Annekathrin Schacht

Georg-Elias-Müller Institut für Psychologie

Cognitive Ecology

Prof. Julia Fischer

Cognitive Neurosciences

Prof. Stefan Treue

Prof. Alexander Gail

Neurobiology of Primates

Prof. Hansjörg Scherberger

Stem Cell Biology

Prof. Rüdiger Behr

German Primate Center, DPZ



Faculty



Molecular Oncology

Prof. Matthias Dobbelstein

Human Genetics

Prof. Bernd Wollnik, Prof. Heidi Hahn

Neuro- and Sensory Physiology,

Prof. Silvio Rizzoli

Anatomy and Embryology

Prof. Christoph Viebahn

Anatomy and Cell Biology

Prof. Jörg Wilting

Otolaryngology – InnerEarLab

Prof. Tobias Moser

Cellular and Molecular Immunology

Prof. Jürgen Wienands

Medical Bioinformatics

Prof. Tim Beissbarth



University Medical Center

UNIVERSITÄTSMEDIZIN
GÖTTINGEN : **UMG**

Faculty

Theoretical Neurophysics

Prof. Fred Wolf

**MPI for Dynamics and Self Organisation and
Campus Institute for Dynamics of Biological Networks**



Molecular Neurobiology

Prof. Nils Brose

Neurogenetics

Prof. Klaus Armin Nave

**MPI for Multidisciplinary Sciences
(formerly Experimental Medicine)**



Faculty

Biophysics

Dr. Dieter Klopfenstein

Computational Neurosciences

Prof. Florian Wörgötter



III Physical Institute

Cellular Logistics

Prof. Dirk Görlich

Nuclear Architecture

Dr. Volker Cordes

Meiosis

Dr. Melina Schuh

Tissue Dynamics and Regeneration

Dr. Jochen Rink

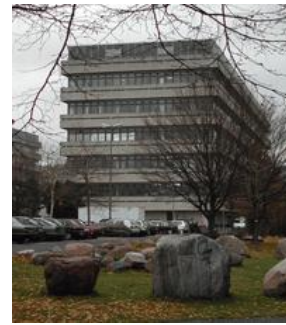
MPI for Multidisciplinary Sciences (formerly Biophysical Chemistry)



Faculty

Bioinformatics

Prof. Jan de Vries



Institute of Microbiology and Genetics

Epigenetics and Systems Medicine in Neurodegenerative Diseases,

Dr. André Fischer

DZNE German Center for Neurodegenerative Diseases



Olfactory Memory

Dr. Thomas Frank

Synaptic Vesicle Dynamics

Dr. Ira Milosevic

Neural Computation and Behavior

Dr. Jan Clemens

European Neuroscience Institute Göttingen



Bachelor of Science (life science)

Master / PhD Program: Developmental, Neural, and Behavioral Biology

modules		credits
semester 1	core I 3 weeks lab course & seminar & lecture	12
	core II 3 weeks lab course & seminar & lecture	12
	key skills	6
semester 2	core III 3 weeks lab course & seminar & lecture	12
	advanced I 7 - 9 weeks lab course	12
	key skills	6
semester 3	profile extended selection according to special interest	12
	advanced II 7 - 9 weeks lab course	12
	advanced III	6
semester 4	master thesis 6 months in a research group of the program	30

There is flexibility in the choice of modules in the first three semesters.

PhD
(direct access
to GAUSS and
GGNB)

career entry

external PhD



Continuing Ph.D. programs



GAUSS

Georg-August-University-School of Science

Faculty Ph.D. program, Faculty of Biology and Psychology

Behaviour and Cognition

GGNB

Göttingen Graduate Center

for Neurosciences, Biophysics and Molecular Biosciences



International Max Planck Research Schools
Physics of Biological and Complex Systems
Genome Science

PhD Programs of the Göttingen Center for Molecular Biosciences (GZMB)

Biomolecules: Structure - Function - Dynamics

Microbiology and Biochemistry

Molecular Biology of Cells

Genes and Development



Cells and Organisms: From Genes to Evolution

PhD Programs of the DFG Research Center Molecular Physiology of the Brain (CMPB)

Molecular Physiology of the Brain (in the future **Neurosciences**)

PhD Program of the Bernstein Center for Computational Neuroscience (BCCN)

Theoretical and Computational Neuroscience

PhD Program of the Medical School

Sensory and Motor Neuroscience

PhD Program of the Center for Systems Neuroscience

Systems Neuroscience

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	example	
term 1	core I	12
	core II	12
	key competence	6
term 2	profile	12
	core III	12
	key competence	6
term 3	advanced I	12
	advanced II	12
	scientific project management	6
term 4	Master thesis	30

PhD
different
programs
available