

Module Catalogue for the Subject

Biomedicine

as a Bachelor's with 1 major with the degree "Bachelor of Science" (180 ECTS credits)

> Examination regulations version: 2013 Responsible: Faculty of Medicine Responsible: Faculty of Biology



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The subject is divided into

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Content and Objectives of the Programme

The bachelor's course of Biomedicine is provided by the Faculty of Medicine and the Faculty of Biology of the JMU as a course with a focus on basic research and a Bachelor of Science (B.Sc) degree. It is part of a consecutive bachelor and master program.

The object of this course is on the one hand to convey medical and scientific knowledge of the whole scope of medicine. On the other hand the students are prepared to use modern methods of molecular biology. In the process of studying the students acquire the necessary expertise and the abilities to conduct research. With a thesis the students prove their ability to process and represent a biomedical problem largely independent with a definite deadline and predetermined scientific methods.



Abbreviations used

Course types: $\mathbf{E} = \text{field trip}$, $\mathbf{K} = \text{colloquium}$, $\mathbf{O} = \text{conversatorium}$, $\mathbf{P} = \text{placement/lab course}$, $\mathbf{R} = \text{project}$, $\mathbf{S} = \text{seminar}$, $\mathbf{T} = \text{tutorial}$, $\ddot{\mathbf{U}} = \text{exercise}$, $\mathbf{V} = \text{lecture}$

Term: **SS** = summer semester, **WS** = winter semester

Methods of grading: **NUM** = numerical grade, **B/NB** = (not) successfully completed

Regulations: **(L)ASPO** = general academic and examination regulations (for teaching-degree programmes), **FSB** = subject-specific provisions, **SFB** = list of modules

Other: A = thesis, LV = course(s), PL = assessment(s), TN = participants, VL = prerequisite(s)

Conventions

Unless otherwise stated, courses and assessments will be held in German, assessments will be offered every semester and modules are not creditable for bonus.

Notes

Should there be the option to choose between several methods of assessment, the lecturer will agree with the module coordinator on the method of assessment to be used in the current semester by two weeks after the start of the course at the latest and will communicate this in the customary manner.

Should the module comprise more than one graded assessment, all assessments will be equally weighted, unless otherwise stated below.

Should the assessment comprise several individual assessments, successful completion of the module will require successful completion of all individual assessments.

In accordance with

the general regulations governing the degree subject described in this module catalogue:

ASP02009

associated official publications (FSB (subject-specific provisions)/SFB (list of modules)):

23-Sep-2013 (2013-111)

This module handbook seeks to render, as accurately as possible, the data that is of statutory relevance according to the examination regulations of the degree subject. However, only the FSB (subject-specific provisions) and SFB (list of modules) in their officially published versions shall be legally binding. In the case of doubt, the provisions on, in particular, module assessments specified in the FSB/SFB shall prevail.



Compulsory Courses

(113 ECTS credits)



Modules Biology

(20 ECTS credits)



Module title					Abbreviation	
Basics of Biology - From Cells to Organisms				07-ZEORG-132-m01		
Module coordinator Module offer			Module offered by	l .		
Dean of Studies Biologie (Biology)				Faculty of Biology		
ECTS	ECTS Method of grading Only after succ.		Only after succ. cor	icc. compl. of module(s)		
7	nume	rical grade				
Duratio	on	Module level	Other prerequisites	5		
1 semester undergraduate Admission prerequisite to assessment (minimum 80%) and successful comp (approx. 25 to 30 hours).						

Contents

The first part of the course will acquaint students with the elementary building blocks of life as well as biological categories. Building on this knowledge, the course will then discuss the cell, the smallest unit of life, starting with its macroscopic structure before moving on to its microscopic structure. The course will point out differences and similarities between prokaryotic cells (bacteria, archaebacteria) and eukaryotic cells (animals, plants). The second part will address one of the central issues of biology: evolution. Fundamental mechanisms and hypotheses will be discussed and students will be introduced to major phylogenetic reconstruction methods. Using the examples of plants and animals, the subsequent module components will introduce students to the phylogenetic diversity of eukaryotes. At the level of groups in the plant and animal kingdoms, students will acquire the fundamental knowledge necessary to understand the forms and functions of animal and plant organisms, with morphology and cytology being discussed in an evolutionary and ecological context. The contents of the module are relevant for biological disciplines at all levels of biological organisation. Students will also acquire and practise some of the fundamental preparation skills bioscientists are often required to possess.

Intended learning outcomes

Knowledge of the structures of prokaryotic and eukaryotic cells and their (biological) macromolecules. Knowledge of the specific characteristics of the intracellular and extracellular structures of prokaryotes as well as animal and plant cells. Ability to recognise evolution as the driving force behind the phylogeny of species. Familiarity with the concepts of phylogenetic relationships between plants/animals. Familiarity with the distinguishing characteristics and major representatives of groups in the plant and animal kingdoms. Ability to select those plant and animal organisms that are most suitable for particular scientific issues. Familiarity with the components and functioning of microscopes. Fundamental skills in the interpretation of macroscopic and histologic preparations by light microscopy. Fundamental preparation skills.

Courses (type, number of weekly contact hours, language — if other than German)

V + V + V + Ü (no information on SWS (weekly contact hours) and course language available)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

written examination (approx. 60 minutes)

Allocation of places

--

Additional information

--

Workload

--

Teaching cycle

--

Referred to in LPO I (examination regulations for teaching-degree programmes)

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	data record Bachelor (180 ECTS) Biomedizin - 2013	



Module appears in

Bachelor' degree (1 major) Biomedicine (2013)



Module	title	,			Abbreviation
Physiol	logy of	Organisms			07-PHYORG-132-m01
Module coordinator				Module offered by	<u> </u>
Dean o	f Studie	es Biologie (Biology)		Faculty of Biology	
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)	
5	nume	rical grade			
Duratio	n	Module level	Other prerequisites		
1 seme	ster	undergraduate		d successful comple	regular attendance of exercises tion of the respective exercises
Conten	ts				
and wil ratory. metabo	ll provid The mo olic dive	de them with an opportu dule will first address th	nity to develop the fu e biochemistry of the module will discuss	ndamental skills for cell and will then m the physiological pro	arative physiology of organisms working in a physiological laboove on to discuss prokaryotic ocesses that regulate the internal
Intende	ed learı	ning outcomes			
					regulation of organisms. They hasentation of scientific results.
Course	S (type, n	number of weekly contact hours,	language — if other than Ger	rman)	
V + V +	V + Ü (no information on SWS (weekly contact hours) and course languas	ge available)
		sessment (type, scope, langua le for bonus)	ge — if other than German,	examination offered — if no	ot every semester, information on whether
written	examiı	nation (approx. 60 minut	es)		
Allocat	ion of p	olaces			
Additio	nal inf	ormation			
Worklo	ad				
			-		
Teachir	ng cycl	e			
Referre	d to in	LPO I (examination regulation	s for teaching-degree progra	immes)	
Module					
Bachel	or' deg	ree (1 major) Biomedicin	e (2013)		



Modul	Module title Abbreviation					
Genetics and Neurobiology					07-GENEU-132-m01	
Modul	e coord	inator		Module offered by		
holder	of the (Chair of Neurobiology and	d Genetics	Faculty of Biology		
ECTS	Metho	od of grading	Only after succ. com	ıpl. of module(s)		
4	nume	rical grade				
Duratio	on	Module level	Other prerequisites			
1 seme	ester	undergraduate		d successful comple	regular attendance of exercises tion of the respective exercises	
Conter	its					
Fundar	mental	principles of genetics and	d neurobiology.			
Intend	ed learı	ning outcomes				
	in anin				al mechanisms and processes in- olecular and formal bases of in-	
Course	S (type, r	number of weekly contact hours, l	anguage — if other than Ger	man)		
V + Ü (no infor	mation on SWS (weekly	contact hours) and co	urse language avail	able)	
		sessment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	ot every semester, information on whether	
written	exami	nation (approx. 60 minut	es)			
Allocat	tion of p	olaces				
Additio	onal inf	ormation				
Worklo	ad					
Teachi	ng cycl	e				
Referre	ed to in	LPO I (examination regulation	s for teaching-degree progra	mmes)		
	e appea					
Bachel	or' deg	ree (1 major) Biomedicine	e (2013)			



			Abbreviation	
Developmenta	al Biology of Animals			07-3A3EBIOTI-132-m01
Module coord	inator		Module offered	l by
Dean of Studi	es Biologie (Biology)		Faculty of Biolo	gy
ECTS Metho	od of grading	Only after succ. cor	mpl. of module(s)
4 nume	rical grade			
Duration	Module level	Other prerequisites	5	
1 semester	undergraduate		d successful con	ent: regular attendance of exercises apletion of the respective exercises
Contents		,		
insects), eco-	devo, evo-devo.	carcinogenesis, stem ce	ll research and c	loning, metamorphosis (amphibians
1. Fundamenta model organis disciplinary co don, cancer a	sms (pattern formation onnections between d nd stem cells as well a	n). 3. Molecular mechan evelopmental biology a	isms as well as on nd other branche tions between on	embryonic development of selected control of cell development. 4. Inter- es of biology. 5. Cell biology of cotyle togeny and evolution/environment.
Courses (type, r	number of weekly contact hou	urs, language — if other than Ge	erman)	
V + Ü (no info	rmation on SWS (weel	kly contact hours) and c	ourse language a	available)
Method of ass		nguage — if other than German,	examination offered -	- if not every semester, information on whether
written exami	nation (approx. 60 mi	nutes)		
	alaces			
Allocation of p	riaces			

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Workload

--

Teaching cycle

--

$\textbf{Referred to in LPO I} \ \ (\text{examination regulations for teaching-degree programmes})$

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Module appears in

Bachelor' degree (1 major) Biology (2013)

Bachelor' degree (1 major) Biomedicine (2013)

Bachelor's degree (1 major, 1 minor) Biology (Minor, 2013)



Modules Chemistry

(12 ECTS credits)



Module title					Abbreviation	
General chemistry for students of biomedicine				08-CH-BM-102-m01		
Module coordinator				Module offered by		
Dean of Studies Chemie (Chemistry)			Institute of Organic Chemistry			
ECTS	Meth	od of grading	Only after succ. cor	npl. of module(s)		
8	nume	rical grade				
Duration Module level Other prerequisite		;				
1 semester undergraduate						
C 4						

Contents

This module discusses the fundamental principles of both inorganic and organic chemistry. The lab course gives students the opportunity to learn essential methods and perform simple experiments.

Intended learning outcomes

Students are able to explain the principles of the periodic table and to extract information from it. They are able to explain basic models of the structure of matter. They have developed the ability to use the language of chemical formulas to describe chemical reactions and to interpret them by identifying the type of reaction. They are able to identify fundamental problems in chemistry and perform experiments to solve them.

Courses (type, number of weekly contact hours, language — if other than German)

This module comprises 3 module components. Information on courses will be listed separately for each module component.

- o8-AC-NF-1-102: V (no information on SWS (weekly contact hours) and course language available)
- o8-IOC-1-102: V (no information on SWS (weekly contact hours) and course language available)
- o8-CH-BMP-1-102: P (no information on SWS (weekly contact hours) and course language available)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

Assessment in this module comprises the assessments in the individual module components as specified below. Unless stated otherwise, successful completion of the module will require successful completion of all individual assessments.

Assessment in module component o8-AC-NF-1-102: Introduction to Inorganic Chemistry for Students of Biology, Medicine and Dentistry

- 3 ECTS, Method of grading: numerical grade
- written examination (approx. 60 minutes)

Assessment in module component o8-IOC-1-102: Organic Chemistry for students of medicine, biomedicine, dental medicine, engineering and natural science

- 3 ECTS, Method of grading: numerical grade
- written examination (approx. 60 minutes)

Assessment in module component o8-CH-BMP-1-102: Practical chemistry course for students of biomedicine

- 2 ECTS, Method of grading: (not) successfully completed
- pre/post-experiment examination talks (Vor-/Nachtestate, approx. 15 minutes each), log (approx. 2 to 5 pages)
- Assessment offered: once a year, summer semester
- Only after successful completion of module components: Successful completion of module component o8-AC-NF-1 or o8-IOC-1 is a prerequisite for participation in module component o8-CH-BMP-1.

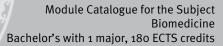
Allocation of places

Information on the allocation of places will be listed separately for each module component.

- 08-CH-BMP-1-102: --
- o8-AC-NF-1-102: Only as part of pool of general key skills (ASQ): 15 places. Places will be allocated by lot.
- o8-IOC-1-102: Only as part of pool of general key skills (ASQ): 15 places. Places will be allocated by lot.

Additional information

Bachelor's with 1 major Biomedicine (2013)





Workload
Teaching cycle
Referred to in LPO I (examination regulations for teaching-degree programmes)
Module appears in
Bachelor' degree (1 major) Biomedicine (2009)
Bachelor' degree (1 major) Biomedicine (2013)



Module	e title	,			Abbreviation
Organi	c Chem	istry 2 for students of b	iomedicine		08-0C-BM-102-m01
Module	e coord	inator		Module offered by	L
Medizi		ture "Organische Chemio ledizin, Zahnmedizin, In en"		Institute of Organic	Chemistry
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)	
4	nume	rical grade			
Duratio	on	Module level	Other prerequisites		
1 seme	ster	undergraduate			
Conten	its				
This m	odule d	eals with the fundamen	tal principles of organ	ic chemistry.	
Intend	ed learı	ning outcomes			
		e developed a knowledg ge to research problems.		principles of organic	chemistry and are able to apply
Course	!S (type, r	umber of weekly contact hours,	language — if other than Ger	rman)	
V (no ii	nformat	ion on SWS (weekly con	tact hours) and cours	e language available	<u>e</u>)
		sessment (type, scope, langu le for bonus)	age — if other than German,	examination offered — if no	ot every semester, information on whether
nutes e	each; 3		o minutes each) or b)	oral examination of	tten examinations: 60 or 90 mione candidate each (approx. 20
Allocat	ion of p	olaces			
Additio	nal inf	ormation			
Worklo	ad				
Teachi	ng cycl	e			
Referre	ed to in	LPO I (examination regulation	ns for teaching-degree progra	immes)	
Module	e appea	rs in			
	_	ree (1 major) Biomedicir			
Bachel	or' deg	ree (1 major) Biomedicir	ie (2013)		



Modules Physics

(10 ECTS credits)



Module title					Abbreviation	
Introduction to Physics for Students of Non-physics-related Minor Subjects					11-EFNF-072-m01	
Module coordinator Module offered by				1		
Managing Director of the Institute of Applied Physics Fact			Faculty of Physics	and Astronomy		
ECTS	Metho	d of grading	Only after succ. o	compl. of module(s)		
7	numeri	ical grade				
Duratio	on	Module level	Other prerequisit	tes		
2 seme	ester	undergraduate				
Conten	its					
Mecha	nics, vib	ration theory, thermod	ynamics, optics, sc	ience of electricity, At	omic and Nuclear Physics.	
Intend	ed learn	ing outcomes				
The stu	idonts b	ava knowlodgo of the	rinciples of Physics	_		

The students have knowledge of the principles of Physics.

 $\textbf{Courses} \ (\text{type, number of weekly contact hours, language} - \text{if other than German})$

V + V (no information on SWS (weekly contact hours) and course language available)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

written examination (approx. 120 minutes)

Allocation of places

Only as part of pool of general key skills (ASQ): 10 places. Places will be allocated by lot.

Additional information

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Workload

--

Teaching cycle

--

Referred to in LPO I (examination regulations for teaching-degree programmes)

--

Module appears in

Bachelor' degree (1 major) Biochemistry (2011)

Bachelor' degree (1 major) Biochemistry (2013)

Bachelor' degree (1 major) Biochemistry (2009)

Bachelor' degree (1 major) Biology (2011)

Bachelor' degree (1 major) Biology (2007)

Bachelor' degree (1 major) Biology (2010)

Bachelor' degree (1 major) Chemistry (2007)

Bachelor' degree (1 major) Chemistry (2008)

Bachelor' degree (1 major) Chemistry (2010)

Bachelor' degree (1 major) Chemistry (2009)

Bachelor' degree (1 major) Geography (2007)

Bachelor' degree (1 major) Geography (2008)

Bachelor' degree (1 major) Geography (2010)

Bachelor' degree (1 major) Computer Science (2007)

Bachelor' degree (1 major) Computer Science (2014)

Bachelor' degree (1 major) Computer Science (2010)

Bachelor' degree (1 major) Food Chemistry (2009)

Bachelor' degree (1 major) Mathematics (2008)



Bachelor' degree (1 major) Mathematics (2014)
Bachelor' degree (1 major) Mathematics (2012)
Bachelor' degree (1 major) Mathematics (2013)
Bachelor' degree (1 major) Mathematics (2007)
Bachelor' degree (1 major) Biomedicine (2009)
Bachelor' degree (1 major) Biomedicine (2013)
Bachelor' degree (1 major) Computational Mathematics (2009)
Bachelor' degree (1 major) Computational Mathematics (2014)
Bachelor' degree (1 major) Computational Mathematics (2012)
Bachelor' degree (1 major) FOKUS Chemistry (2011)



Modul	e title		Abbreviation			
Practic	al Cou	rse Physics for Students	11-PFNF-072-m01			
Module coordinator Module offered by						
Managing Director of the Institute of Applied			pplied Physics	Faculty of Physics	Faculty of Physics and Astronomy	
ECTS	Meth	od of grading	Only after succ. co	ompl. of module(s)		
3	(not)	successfully completed				
Duratio	on	Module level	Other prerequisite	S		
1 semester undergraduate						
Conter	nts		•			
Mecha	nics, vi	bration theory, thermody	namics, optics, X-ra	vs, nuclear magnetic	resonance, Atomic and Nuclear	

Intended learning outcomes

The students have knowledge of the principles of Physics.

Courses (type, number of weekly contact hours, language — if other than German)

P (no information on SWS (weekly contact hours) and course language available)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) oral test (approx. 15 minutes) during experiment and b) ungraded written examination (approx. 90 minutes)

Allocation of places

Only as part of pool of general key skills (ASQ): 10 places. Places will be allocated by lot.

Additional information

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Workload

Physics.

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Teaching cycle

--

Referred to in LPO I (examination regulations for teaching-degree programmes)

--

Module appears in

Bachelor' degree (1 major) Biochemistry (2011)

Bachelor' degree (1 major) Biochemistry (2013)

Bachelor' degree (1 major) Biochemistry (2009)

Bachelor' degree (1 major) Biology (2011)

Bachelor' degree (1 major) Biology (2007)

Bachelor' degree (1 major) Biology (2010)

Bachelor' degree (1 major) Chemistry (2007)

Bachelor' degree (1 major) Chemistry (2008)

Bachelor' degree (1 major) Chemistry (2010)

Bachelor' degree (1 major) Chemistry (2009)

Bachelor' degree (1 major) Geography (2007)

Bachelor' degree (1 major) Geography (2008)

Bachelor' degree (1 major) Geography (2010)

Bachelor' degree (1 major) Computer Science (2007)

Bachelor' degree (1 major) Computer Science (2014)

Bachelor' degree (1 major) Computer Science (2010)

Bachelor' degree (1 major) Food Chemistry (2009)



Bachelor' degree (1 major) Biomedicine (2009) Bachelor' degree (1 major) Biomedicine (2013) Bachelor' degree (1 major) FOKUS Chemistry (2011)



Modules Mathematics/Statistics

(5 ECTS credits)



Duration Module level Other prerequisites 1 semester undergraduate Registration for the exercise must be made via SB@home at the beginning of the course or as announced by the lecturer in accordance with the specified registration deadlines. Certain prerequisites must be met to qualify for admission to assessment (e. g., successful completion of a certain percentage of exercises). The lecturer will inform students about the respective details at the beginning of the course. Registration for the exercise will be considered a declaration of will to seek admission to as sessment. If students have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for assessment into effect. Students who meet all prerequisite will be admitted to assessment in the current or in the subsequent seme ster. For assessment at a later date, students will have to obtain the qualification for admission to assessment anew and have to register anew, too. Contents Basics of statistics: descriptive statistics, probability theory, deductive statistics. Intended learning outcomes The student is able to utilise basic statistical methods for the evalutation of data and interpret the results. Courses (type, number of weekly contact hours, language — if other than German) V + Ú (no information on SWS (weekly contact hours) and course language available) Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus) written examination (go to 120 minutes) Language of assessment: German, English if agreed upon with the examiner Aldocation of places	Modul	e title		Abbreviation		
Dean of Studies Mathematik (Mathematics) ECTS Method of grading Only after succ. compt. of module(s) Immerical grade Duration Module level Other prerequisites In semester Undergraduate Registration for the exercise must be made via SB@home at the beginning of the course or as announced by the lecturer in accordance with the specified registration deadlines. Certain prerequisites must be met to qualify for admission to assessment (e. g. successful completion of a certain percentage of exercises). The lecturer will inform students about the respective details at the beginning of the course. Registration for the exercise will be considered a declaration of will to seek admission to assessment in students about the respective details at the beginning of the course. Registration for admission to assessment into exercise will be admitted to assessment in the current or in the subsequent sems seement. If students who meet all prerequisite will be admitted to assessment in the current or in the subsequent sems ster. For assessment at a later date, students will have to obtain the qualification for admission to assessment anew and have to register anew, too. Contents Basics of statistics: descriptive statistics, probability theory, deductive statistics. Intended learning outcomes The student is able to utilise basic statistical methods for the evalutation of data and interpret the results. Courses (type, number of weekly contact hours, language — if other than German) V + U (no information on SWS (weekly contact hours) and course language available) Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus) written examination (go to 120 minutes) Language of assessment: German, English if agreed upon with the examiner Allocation of places	Statist	ics for	students of natural scien	ces and biomedicine		10-M-STAB-111-m01
Method of grading Only after succ. compt. of module(s) numerical grade Teaching outcome Module level Undergraduate Indergraduate Inderdradinson the exercise must be made via SB@homme at the beginning of the course and announced with the segment of exercises. Proceedings of exercises. Proceedings of exercises. Proceedings of the exercise of exercises. Proceedings of the exercise must be made via SB@homme at the beginning of the course of the exercise must be made via SB@homme at the beginning of the course leadings of the course of an announced visition of admission to accercises. The lecture will information of the exercise with the exercise will and the qualification for admission t	Modul	e coord	linator		Module offered by	
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Courses (type, number of weekly contact hours, language — if other than German) V + Ü (no information on SWS (weekly contact hours) and course language available) Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus) written examination (90 to 120 minutes) Language of assessment: German, English if agreed upon with the examiner Allocation of places Additional information Workload Teaching cycle Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in Bachelor' degree (1 major) Biomedicine (2009)	Intend	ed lear	ning outcomes			
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Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in Bachelor' degree (1 major) Biomedicine (2009)	Worklo	ad				
Referred to in LPO I (examination regulations for teaching-degree programmes) Module appears in Bachelor' degree (1 major) Biomedicine (2009)						
Module appears in Bachelor' degree (1 major) Biomedicine (2009)	Teachi	ng cycl	e			
Module appears in Bachelor' degree (1 major) Biomedicine (2009)						
Bachelor' degree (1 major) Biomedicine (2009)	Referred to in LPO I (examination regulations for teaching-degree programmes)					
Bachelor' degree (1 major) Biomedicine (2009)						
				0 (2000)		



Modules Biochemistry

(21 ECTS credits)



Module title				Abbreviation	
Basic Bioche	mistry and Molecular Bi	ology		03-98-BCH-092-m01	
Module coor	dinator		Module offered by	•	
	e Chairs of Physiological nemistry, Biochemistry ar	•	Faculty of Medicine		
ECTS Meth	od of grading	Only after succ. con	npl. of module(s)		
11 num	erical grade				
Duration	Module level	Other prerequisites	Other prerequisites		
2 semester	undergraduate	ning of the course of the specified registre to qualify for admission certain percentage of the respective detail exercise will be consessment. If studen assessment over the gistration for assess	or as announced by the ration deadlines. Cer sion to assessment (of exercises). The lectils at the beginning considered a declaration ts have obtained the ecourse of the sement into effect. Students of the sement into effect. Students of the sement into effect.	ade via SB@home at the begin- the lecturer in accordance with tain prerequisites must be met (e. g. successful completion of a cturer will inform students about of the course. Registration for the n of will to seek admission to as- e qualification for admission to ester, the lecturer will put their re- udents who meet all prerequisites arrent or in the subsequent seme-	

Biochemistry: structure and function of the building blocks of life, enzyme kinetics, biochemical analytics, fundamentals of intermediate and energy metabolism, mitochondrial function. Molecular biology: storage, transduction and expression of genetic information, control of cell functions by hormones and signal transduction processes, basic immunology. Performing biochemical detection reactions and molecular biology experiments.

Intended learning outcomes

Students gain an understanding of the foundations of human biochemistry and molecular biology. They develop the ability to prepare and present material on selected topics. They are proficient in the reproducible collection of simple biochemical and molecular biological data.

 $\textbf{Courses} \ (\textbf{type, number of weekly contact hours, language} - \textbf{if other than German})$

V + S + Ü (no information on SWS (weekly contact hours) and course language available)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 45 minutes) and 2 presentations (approx. 10 minutes each) or b) oral examination of one candidate each (approx. 20 minutes) and 2 presentations (approx. 10 minutes each) or c) oral examination in groups of up to 3 candidates (approx. 20 minutes per candidate) and 2 presentations (approx. 10 minutes each), weighted 6:1:1 (written/oral examination: presentation)

Allocation of places

Additional information

Workload

Teaching cycle

Bachelor's with 1 major Biomedicine (2013)	JMU Würzburg • generated 26-Aug-2024 • exam. reg.	page 26 / 94
	data record Bachelor (180 ECTS) Biomedizin - 2013	



Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor' degree (1 major) Biomedicine (2009)

Bachelor' degree (1 major) Biomedicine (2013)



Module title					Abbreviation	
Advand	ed Bio	chemistry and Molecular	Biology		03-98-BCHF-092-m01	
Module	e coord	inator		Module offered by		
		Chairs of Physiological Cemistry, Biochemistry and		Faculty of Medicine	2	
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)		
10	nume	rical grade				
Duratio	on	Module level	Other prerequisites			
1 seme	ster	undergraduate			regular attendance of courses beginning of the course.	
Conten	its					
control gate ce of curre	of cell Ilular p ent liter	and organ functions. Apparameters such as generature on selected topics.	olication of molecula expression patterns,	r biology and geneti	ships. Examples of the molecular c engineering methods to investior growth and apoptosis. Review	
Intend	ed lear	ning outcomes				
standir	ng of th		l and misguided cell	functions and acqui	ar biology. They develop an under re practical routine in circumscri- erimental data.	
Course	S (type, r	number of weekly contact hours, l	anguage — if other than Ger	rman)		
V + S +	Ü (no i	nformation on SWS (wee	kly contact hours) an	d course language a	available)	
		sessment (type, scope, langua le for bonus)	ge — if other than German,	examination offered — if no	ot every semester, information on whether	
oral ex to 10 p	aminat ages) o	ion of one candidate eac r c) oral examination in g	h (approx. 20 minute roups of up to 3 cand	s) and presentation didates (approx. 20	tes) and log (5 to 10 pages) or b) (approx. 20 minutes) and log (5 minutes per candidate) and preoral examination: presentation:	
Allocat	ion of p	olaces				
Additio	nal inf	ormation				
Worklo	ad					
Teachi	ng cycl	e				
Referre	d to in	LPO I (examination regulation	s for teaching-degree progra	mmes)		
Module	e appea	ars in				
Bachel	Bachelor' degree (1 major) Biomedicine (2009)					

Bachelor' degree (1 major) Biomedicine (2013)



Modules Anatomy

(10 ECTS credits)



Module	e title				Abbreviation	
Anaton	ny and	Histology			03-98-ANA-132-m01	
Module	e coord	inator		Module offered by	Module offered by	
Institut	te of An	atomy and Cell Biology	1	Faculty of Medicine		
ECTS	Metho	od of grading	Only after succ. cor	mpl. of module(s)		
10	nume	rical grade				
Duratio	on	Module level	Other prerequisites	;		
1 semester		undergraduate	By way of exception assessments.	ı, additional prerequ	isites are listed in the section on	

Contents

Anatomy I: musculoskeletal system, cranium, respiratory system, cardiovascular organs, digestive organs, urinary organs, sexual organs, brain. Part 1: cytology/histology. Part 2: microscopic anatomy. Anatomy II: organ systems, general and special anatomy of the digestive, cardiovascular, respiratory and urogenital organs and endocrine glands, central and peripheral nervous system, general and special histology, fundamentals of histopathology, general cytology and histology, microscopy of tissue sections, practical exercises.

Intended learning outcomes

The students are familiar with the foundations of general and special microscopic as well as macroscopic anatomy.

Courses (type, number of weekly contact hours, language — if other than German)

This module comprises 2 module components. Information on courses will be listed separately for each module component.

- 03-98-ANA-1-132: S + Ü (no information on SWS (weekly contact hours) and course language available)
- 03-98-ANA-2-132: S + V + P (no information on SWS (weekly contact hours) and course language available)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

Assessment in this module comprises the assessments in the individual module components as specified below. Unless stated otherwise, successful completion of the module will require successful completion of all individual assessments.

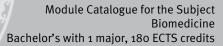
Assessment in module component 03-98-ANA-1-132: Anatomy and Cell Biology Anatomy and Cell Biology

- 5 ECTS, Method of grading: numerical grade
- a) written examination (approx. 60 to 90 minutes) or b) oral examination of one candidate each (approx. 20 minutes)
- Assessment offered: once a year, winter semester
- Other prerequisites: Admission prerequisite to assessment: regular attendance of courses (lectures excluded) as specified at the beginning of the course.

Assessment in module component 03-98-ANA-2-132: Histology Histology Histology

- 5 ECTS, Method of grading: numerical grade
- a) 2 written examinations (approx. 60 minutes each), weighted 1:2 or b) 2 oral examinations of one candidate each (approx. 20 minutes), weighted 1:2
- Assessment offered: once a year, summer semester
- Other prerequisites: Admission prerequisite to assessment: regular attendance of courses (lectures excluded) as specified at the beginning of the course.

cluded) as specified at the beginning of the course.	
Allocation of places	
Additional information	
Workload	





Teaching cycle
Referred to in LPO I (examination regulations for teaching-degree programmes)
Module appears in
Bachelor' degree (1 major) Biomedicine (2013)



Modules Physiology

(10 ECTS credits)



Module	Module title Abbreviation						
Human	Human Physiology 1+2 03-98-PHY-092-mo1						
Module	Module coordinator Module offered by						
holders Neurop		Chairs of Cardiovascula	r Physiology and	Faculty of Medicine	2		
ECTS	Meth	od of grading	Only after succ. con	npl. of module(s)			
10	nume	rical grade					
Duratio	on	Module level	Other prerequisites	i			
2 seme	ester	undergraduate			regular attendance of courses beginning of the course.		
Conten	its	,	-				
drate n	netabo	lism, nerves and muscles	s, hearing and vestibu	ılar apparatus, eyes	od, energy balance and carbohy- and vision; 2. functionality of the balance, acid-base balance.		
Intend	ed lear	ning outcomes					
					ology. They develop the ability to f physiological processes.		
Course	S (type, i	number of weekly contact hours,	language — if other than Ge	rman)			
V + V +	Ü + Ü	(no information on SWS (weekly contact hours) and course langua	ge available)		
		sessment (type, scope, langua ble for bonus)	age — if other than German,	examination offered — if no	ot every semester, information on whether		
2 writte	en exar	minations (approx. 60 mi	nutes each)				
Allocat	ion of	places					
Additio	nal inf	ormation					
			<u>-</u> -				
Worklo	ad						
Teachi	Teaching cycle						
Referred to in LPO I (examination regulations for teaching-degree programmes)							
Module	e appe	ars in					
	Bachelor' degree (1 major) Biomedicine (2009)						
Bachel	Bachelor' degree (1 major) Biomedicine (2013)						



Modules Pharmacology and Toxicology

(7 ECTS credits)



Module title Abbreviation						
Pharmacology and Toxicology 03-98-APT-092-m01					03-98-APT-092-m01	
Modul	e coord	inator		Module offered by	1	
holder	of the	Chair of Pharmacology	and Toxicology	Faculty of Medicin	e	
ECTS	Meth	od of grading	Only after succ. cor	mpl. of module(s)		
7	nume	rical grade				
Durati	on	Module level	Other prerequisites	3		
2 seme	ester	undergraduate			regular attendance of courses beginning of the course.	
Conte	nts					
drugs, ment o	drugs a	affecting the gastrointe ions and cancer, immu		drugs, hormonal trea	ogy, diuretics, anti-coagulative atment, drugs used in the treatfoxication.	
		ning outcomes				
have a	cquirec	•	f each named drug clas		rmacology and toxicology. They s of action, basal pharmacokinetion	
Course	es (type, r	number of weekly contact hou	rs, language — if other than Ge	rman)		
V + S (no info	mation on SWS (week	ly contact hours) and c	ourse language avai	ilable)	
		sessment (type, scope, lan le for bonus)	guage — if other than German,	examination offered — if r	not every semester, information on whether	
candic	late eac	th (approx. 20 minutes		prox. 10 minutes) or	utes) or b) oral examination of one c) oral examination in groups of ox. 10 minutes)	
Alloca	tion of	olaces				
Additio	onal inf	ormation				
Workload						
Teaching cycle						
Referre	ed to in	LPO I (examination regulat	ions for teaching-degree progr	ammes)		
Modul	e appea	ars in				
Bache	Bachelor' degree (1 major) Biomedicine (2009)					

Bachelor' degree (1 major) Biomedicine (2013)



Modules Microbiology, Virology and Immunology

(5 ECTS credits)



Module	e title			,	Abbreviation	
General Microbiology, Virology, Immunology 03-98-MVI-092-m01					03-98-MVI-092-m01	
Module coordinator				Module offered by		
holder of the Chair of Microbiology, holder of the Chair of Virology, holder of the Chair of Immunology				Faculty of Medicine		
ECTS Method of grading Only after succ. compl. of module(s)						
5	nume	rical grade		•		
Duratio	on	Module level	Other prerequisites			
1 seme	ster	undergraduate				
Conten	ts					
biology	ı: bacte				s and selected topics; part micro- ciples and components of the im-	
Intende	ed lear	ning outcomes				
		will be introduced to scie ental knowledge in these		rology, microbiology	and immunology. They will ac-	
Course	S (type, r	number of weekly contact hours, l	anguage — if other than Gei	rman)		
V + V +	V (no i	nformation on SWS (weel	kly contact hours) an	d course language a	vailable)	
		sessment (type, scope, langua le for bonus)	ge — if other than German,	examination offered — if no	ot every semester, information on whether	
candid	ate eac		nd presentation (app	orox. 10 minutes) or 0	tes) or b) oral examination of one c) oral examination in groups of x. 10 minutes)	
Allocat			· ·			
Additio	nal inf	ormation				
Worklo	ad					
Teachi	ng cycl	e				
Referre	d to in	LPO I (examination regulations	s for teaching-degree progra	ımmes)		
Module	e appea	ars in				
	Bachelor' degree (1 major) Biomedicine (2009)					
Bachel	Bachelor' degree (1 major) Biomedicine (2013)					



Modules Pathology

(3 ECTS credits)



Modul	e title			Abbreviation			
Pathology 03-98-APA-092-m01					03-98-APA-092-m01		
Modul	e coord	inator		Module offered by	l.		
holder of the Chair of Pathology				Faculty of Medicine	2		
			Only after succ. con	npl. of module(s)			
3	nume	rical grade					
Duratio	on	Module level	Other prerequisites				
1 seme	ster	undergraduate					
Conter	its						
		pecial pathology: pathol gy, examples of importar		lassification of infla	mmation, immunopathology, tu-		
Intend	ed lear	ning outcomes					
into th	e patho ation, n	ogenesis, histopathology netabolic disorders and c	, macroscopic pathol organ diseases.	ogy and clinicopath	They have acquired a first insight ologic correlations of cancer, in-		
	-	number of weekly contact hours,			`		
		tion on SWS (weekly cont					
		Sessment (type, scope, langua ble for bonus)	ge — if other than German,	examination offered — if n	ot every semester, information on whether		
candid	ate eac		nd presentation (app	orox. 10 minutes) or	tes) or b) oral examination of one c) oral examination in groups of ex. 10 minutes)		
Allocat	ion of p	places					
Additio	nal inf	ormation					
Worklo	ad						
Teachi	ng cycl	e					
Referre	ed to in	LPO I (examination regulation	s for teaching-degree progra	mmes)			
Modul	e appea	ars in					
Bachel	or' deg	ree (1 major) Biomedicin	e (2009)				



Modules Advanced Lab Course

(10 ECTS credits)



Module	Module title Abbreviation					
Project work in research laboratory					03-98-IPP-092-m01	
Module	e coord	inator		Module offered by		
Dean of Studies Biomedizin (Biomedic			ine)	Faculty of Medicine		
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)		
10	(not)	successfully completed				
Duratio	uration Module level Other prerequisites					
1 seme	ester	undergraduate			regular attendance of courses eginning of the course.	
Conten	ıts					
		n a research laboratory fo his project may lay the fo			he in-depth analysis of a scientiesis.	
Intend	ed lear	ning outcomes				
		ore complex experiments I current literature and kr		nods. Students gain	an insight into new areas of rese-	
Course	S (type, r	number of weekly contact hours, l	anguage — if other than Ger	rman)		
R (no ir	nformat	tion on SWS (weekly cont	act hours) and cours	e language available	2)	
		sessment (type, scope, langua le for bonus)	ge — if other than German, o	examination offered — if no	ot every semester, information on whether	
log (10	to 15 p	ages) and presentation (approx. 15 minutes)			
Allocat	tion of p	olaces				
Additio	onal inf	ormation				
Worklo	ad					
Teachi	ng cycl	e				
Referre	ed to in	LPO I (examination regulation	s for teaching-degree progra	mmes)		
Module	e appea	ars in				
	Bachelor' degree (1 major) Biomedicine (2009)					
Bachel	Bachelor' degree (1 major) Biomedicine (2013)					



Thesis

(12 ECTS credits)



Module title	Abbreviation
Bachelor thesis Biomedicine	03-98-THK-132-m01

Module coordinator	Module offered by
chairperson of examination committee Biomedizin (Biome-	Faculty of Medicine
dicine)	

ECTS	Metho	od of grading	Only after succ. compl. of module(s)
12	numerical grade		
Duratio	n	Module level	Other prerequisites
1 seme	ster	undergraduate	

Contents

Conduct a defined and focused research project under supervision within a limited time frame.

Intended learning outcomes

Students demonstrate their ability to solve a defined problem within a chosen area within a given time frame by applying scientific research methods.

Courses (type, number of weekly contact hours, language — if other than German)

This module has 2 components; information on courses listed separately for each component.

- o3-98-THK-2-132: K (no information on language and number of weekly contact hours available)
- o3-98-THK-1-000: no courses assigned

 $\textbf{Method of assessment} \ (\textbf{type}, \textbf{scope}, \textbf{language} - \textbf{if other than German, examination offered} - \textbf{if not every semester, information on whether} \ (\textbf{type}, \textbf{scope}, \textbf{language} - \textbf{if other than German, examination offered} - \textbf{if not every semester, information on whether} \ (\textbf{type}, \textbf{scope}, \textbf{language}) \ (\textbf{type}, \textbf{language}) \$ module is creditable for bonus)

This module has the following 2 assessment components. Unless stated otherwise, students must pass all of these assessment components to pass the module as a whole..

Assessment component to module component 03-98-THK-2-132: Kolloquium

- 2 ECTS credits, method of grading: numerical grade
- oral examination of on candidate each (approx. 20 minutes)
- Language of assessment: German or English

Assessment component to module component 03-98-THK-1-000:

- ECTS credits, method of grading: unknown

Allocation of places

Additional information

Workload

Teaching cycle

Referred to in LPO I (examination regulations for teaching-degree programmes)

Module appears in



Compulsory Electives

(35 ECTS credits)



Compulsory Electives I

(5 ECTS credits)



Module title Abbreviation					Abbreviation	
Cell Biology					03-98-PZB-092-m01	
Module	coord	inator		Module offered by		
holder	of the (Chair of Medical Radiatio	n and Cell Research	Faculty of Medicine	!	
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)		
5	numerical grade					
Duratio	n	Module level	Other prerequisites			
1 semes	ster	undergraduate				
Conten	ts					
structui	Becoming familiar with basic cell biological principles via hands-on training and seminars. Major topics are the structural organisation of eukaryotic cells, cell-cell and cell-matrix interactions, proliferation, differentiation and apoptosis.					
Intende	d lear	ning outcomes				

Problem-oriented handling of eukaryotic cells under sterile conditions and understanding of principles of techniques for the analysis of cells. Understanding the molecular basis of cell biology and cellular malfunctions and their significance for disease development. Independent extraction of relevant information and presentation of selected examples of current literature.

Courses (type, number of weekly contact hours, language — if other than German)

R + S (no information on SWS (weekly contact hours) and course language available)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

methods of assessment: a) written examination (45 to 60 minutes) or b) log (10 to 20 pages) or c) oral examination of one candidate each (approx. 20 minutes) or d) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or e) presentation (20 to 30 minutes)

Allocation of places

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Additional information

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Workload

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Teaching cycle

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Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor' degree (1 major) Biomedicine (2009)



Modu	le title				Abbreviation	
Introduction to genetics and human genetics					03-98-PGH-092-m01	
Modul	le coord					
chemi	stry and	Chair of Clinical Biochem I holder of the Chair of Ne search Center for Infectio	eurobiology and Ge-	Faculty of Medicine		
ECTS	Meth	od of grading	Only after succ. compl. of module(s)			
5	nume	rical grade				
Durati	on	Module level	Other prerequisites			
1 sem	ester	undergraduate				
Conte	nts					
by ger	netic ins		ve diseases, heredita	ary cancer. Practical	man diseases: diseases caused part: molecular genetic diagno-ermogenetics.	
Intend	led lear	ning outcomes				
lecula		c diagnostics and genetic			osophila genetics as well as mo- ced knowledge of the genetics of	
Cours	es (type,	number of weekly contact hours, l	anguage — if other than Ger	rman)		
P + V -	⊦Ü (no	information on SWS (wee	kly contact hours) an	d course language a	vailable)	
		sessment (type, scope, langua ole for bonus)	ge — if other than German, o	examination offered — if no	ot every semester, information on whether	
on of o	one can		ninutes) or d) oral ex	amination in groups	to 20 pages) or c) oral examinatiof up to 3 candidates (approx. 15	
Alloca	tion of	places				
Additi	onal inf	formation				
	,					
Workl	oad					
Teach	ing cyc	le				
Referr	ed to in	LPO I (examination regulations	s for teaching-degree progra	mmes)		
Modu	le appe	ars in				
Bache	Bachelor' degree (1 major) Biomedicine (2009)					
Bache	Sachelor' degree (1 major) Biomedicine (2013)					



Compulsory Electives II

(5 ECTS credits)



Module	title	,	Abbreviation			
Introdu	ction t	o bioinformatics	07-BI-132-m01			
Module	coord	inator	Module offered by	offered by		
holder of the Chair of Bioinformatics				Faculty of Biology		
ECTS Method of grading Only after succ. con				ıpl. of module(s)		
5	nume	rical grade				
Duratio	n	Module level	Other prerequisites			
1 seme	ster	undergraduate				
Conten	ts					
Fundan	nental	principles of bioinformat	ics.			
Intende	ed lear	ning outcomes				
Studen	ts are p	proficient in methods for	the analysis of DNA a	ınd protein database	25.	
Course	S (type, r	number of weekly contact hours, l	anguage — if other than Ger	man)		
V + Ü (r	no info	rmation on SWS (weekly	contact hours) and co	ourse language avail	able)	
		sessment (type, scope, langua ble for bonus)	ge — if other than German, e	examination offered — if no	ot every semester, information on whether	
		mination (30 to 60 minut examination in groups	es) and/or b) oral exa	amination of one car	ndidate each (approx. 20 minu-	
Allocat						
Additio	nal inf	ormation				
Worklo	ad					
Teachi	ng cycl	e				
Referre	d to in	LPO I (examination regulation:	s for teaching-degree progra	mmes)		
Module	appea	ars in				
Bachel	or' deg	ree (1 major) Biomedicine	e (2013)			



Module	e title				Abbreviation	
Introdu	Introduction to methods in experimental biomedicine 03-98-RVZ-092-m01					
Modul	e coord	inator		Module offered by	I.	
holder of the Chair of Experimental Biomedicine				Faculty of Medicine	9	
ECTS	·			npl. of module(s)		
5		rical grade				
Duratio	on	Module level	Other prerequisites	uisites		
1 seme	ster	undergraduate				
Conter	its					
questi	ons of p	latelet physiology and m	negakaryopoiesis. Em	nphasis is put on the	ne are taught based on selected e generation and use of antibo- patho-)physiological processes.	
Intend	ed learı	ning outcomes				
help of experir sentati	monod mental of	clonal antibodies, in part design, bench work, data cientific results in Englisl	icular in the field of paranalysis and the int h.	platelet physiology. I terpretation of scient	nental data obtained with the They also have developed skills in tific literature as well as the pre-	
		number of weekly contact hours, l				
		mation on SWS (weekly o				
		sessment (type, scope, langua le for bonus)	ge — if other than German,	examination offered — if no	ot every semester, information on whether	
on of o	ne can		minutes) or d) oral ex	camination in groups	to 20 pages) or c) oral examination of up to 3 candidates (approx. 15	
Allocat	ion of p	olaces				
Additio	nal inf	ormation				
Worklo	ad					
Teachi	ng cycl	e				
Referre	ed to in	LPO I (examination regulation	s for teaching-degree progra	ammes)		
Modul	e appea	ars in				
Bachel	Bachelor' degree (1 major) Biomedicine (2009)					
- 1 1						



Teaching cycle

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Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor' degree (1 major) Biomedicine (2009)



001					
eases caused netic diagno-					
he genetics of					
ation on whether					
oral examinati- tes (approx. 15					
Referred to in LPO I (examination regulations for teaching-degree programmes)					



Modul	e title	,			Abbreviation	
Introductory Neurobiology for students of biomedicine					03-98-PGN-092-m01	
Modul	e coord	inator		Module offered by	I.	
holder	of the	Chair of Clinical Neurobio	ology	Faculty of Medicine		
ECTS	Meth	od of grading	Only after succ. con	ıpl. of module(s)		
5	nume	rical grade				
Durati	on	Module level	Other prerequisites			
1 seme	ester	undergraduate			regular attendance of courses eginning of the course.	
Conte	nts					
		amentals of neuroanatom agnosis, therapeutic opt			seases of the nervous system:	
Intend	ed lear	ning outcomes				
and fu	nction		ving oral presentatio	ns, they have develo	Il knowledge about the structure pped the ability to critically reflect obiology.	
Course	es (type, i	number of weekly contact hours,	language — if other than Ger	man)		
V + S +	· Ü (no i	nformation on SWS (wee	kly contact hours) an	d course language a	vailable)	
		sessment (type, scope, langua ole for bonus)	age — if other than German, o	examination offered — if no	ot every semester, information on whether	
on of c	ne can		minutes) or d) oral ex	amination in groups	to 20 pages) or c) oral examinatiof up to 3 candidates (approx. 15	
Alloca	tion of	places				
Additio	onal inf	ormation				
Worklo	oad					
Teachi	ng cycl	e				
Referre	ed to in	LPO I (examination regulation	s for teaching-degree progra	mmes)		
Modul	e appe	ars in				
	_	ree (1 major) Biochemist	• •			
	_	ree (1 major) Biochemist				
	_	ree (1 major) Biochemist	•			
	_	ree (1 major) Biomedicin	_			
васпе	Bachelor' degree (1 major) Biomedicine (2013)					



Compulsory Electives III

(10 ECTS credits)



Module	Module title Abbreviation							
Practical Course in Microbiology and Immunology for students of biomedicine					03-98-PMIM-132-m01			
Module coordinator Module offered by								
holder of the Professorship of Parasitology, holder of the Professorship of Immune Regulation			C , .	Faculty of Medicine				
ECTS	Meth	od of grading	Only after succ. cor	npl. of module(s)				
5	nume	rical grade						
Duratio	n	Module level	Other prerequisites	3				
1 semester undergraduate			equisite to assessment: regular attendance of courses led) as specified at the beginning of the course.					
Conton	tc	•						

Contents

Part microbiology: fundamental principles of the interaction of bacterial pathogens and multicellular parasites with host organisms; invasion of mammalian cells by intracellular bacteria as well as the regulation and mode of action of bacterial virulence factors; fundamental principles of microbial diagnostics. Part immunology: how antigen recognition, uptake and presentation by dendritic cells lead to induction of activation markers, transcription factors, cytokines and proliferation of CD4+ T lymphocytes.

Intended learning outcomes

Section microbiology: Students will acquire theoretical and practical knowledge on bacterial virulence factors, their regulation and mode of action in the context of infectious disease, including the invasion of eukaryotic host cells by bacterial pathogens and the multiplication and persistence of bacteria within host cells. The students will become familiar with fundamental principles on the cultivation of bacteria and multicellular parasites under laboratory conditions as well as the utilisation of these cultivation systems for the development of novel antiinfectives. The students will become familiar with the principles of microbial diagnostics, including microbial cultivation as well as DNA-based, microscopical, serological and physiological methods of diagnostic differentiation. Section immunology: The students will acquire theoretical and practical knowledge about mechanisms that cells of the innate immune system use to sense pathogens and how this information is translated in the activation of T lymphocytes. They will learn fundamental techniques of sterile cell culture, flow cytometry and confocal microscopy analysis techniques and ELISA.

Courses (type, number of weekly contact hours, language — if other than German)

P + S (no information on SWS (weekly contact hours) and course language available)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

methods of assessment: a) written examination (45 to 60 minutes) or b) log (10 to 20 pages) or c) oral examination of one candidate each (approx. 20 minutes) or d) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or e) presentation (20 to 30 minutes)

Allocation of places

Additional information

Workload

Teaching cycle

Referred to in LPO I (examination regulations for teaching-degree programmes)

Module appears in



Module	e title				Abbreviation	
Practic	Practical Course in Immunology and Virology for students of biomedicine 03-98-PIMV-132-m01					
Module coordinator Module offered by						
		Professorship of Immune f Virology	Regulation, holder	Faculty of Medici	ne	
ECTS	Meth	od of grading	Only after succ. con	npl. of module(s)		
5	nume	rical grade				
Duratio	on	Module level	Other prerequisites			
1 seme	ster	undergraduate			t: regular attendance of courses be beginning of the course.	
Conten	its					
tivation	n marke	ers, transcription factors,	cytokines and prolife	eration of CD4+ T ly	ritic cells lead to induction of ac- ymphocytes. Part virology: funda- enesis using the microscope.	
Intend	ed lear	ning outcomes				
analysi pathog	is techi enetic	niques and ELISA. Section alterations following vira	n virology: Practical k l infections.	nowledge about tl	ytometry and confocal microscopy ne detection of viral infections and	
	-	number of weekly contact hours,			- 11 - L 1 - \	
	_	mation on SWS (weekly				
		Sessment (type, scope, langua ble for bonus)	ige — if other than German,	examination offered — II	f not every semester, information on whether	
methoo	ds of as ne can	ssessment: a) written exa	minutes) or d) oral ex	amination in grou	no to 20 pages) or c) oral examinatips of up to 3 candidates (approx. 15	
Allocat	ion of	places				
Additio	nal inf	ormation				
Worklo	ad					
			-			
Teachi	ng cycl	e				
Referre	ed to in	LPO I (examination regulation	s for teaching-degree progra	immes)		

Bachelor' degree (1 major) Biomedicine (2013)

Module appears in



Module	Module title Abbreviation							
Practical Course in Microbiology and Virology for students of biomedicine					03-98-PMV-092-m01			
Module coordinator Module offered by								
holder of the Professorship of Parasito Chair of Virology			sitology, holder of the	Faculty of Medicin	e			
ECTS	Meth	od of grading	Only after succ. cor	mpl. of module(s)				
5	nume	rical grade						
Duratio	n	Module level	Other prerequisites	5				
1 semester undergraduate			requisite to assessment: regular attendance of courses ded) as specified at the beginning of the course.					
Conten	Contents							

Part microbiology: fundamental principles of the interaction of bacterial pathogens and multicellular parasites with host organisms; invasion of mammalian cells by intracellular bacteria as well as the regulation and mode of action of bacterial virulence factors; fundamental principles of microbial diagnostics. Part virology: fundamental methods to demonstrate viral infections and to recognise viral pathogenesis using the microscope.

Intended learning outcomes

Section microbiology: Students will acquire theoretical and practical knowledge on bacterial virulence factors, their regulation and mode of action in the context of infectious disease, including the invasion of eukaryotic host cells by bacterial pathogens and the multiplication and persistence of bacteria within host cells. The students will become familiar with fundamental principles of the cultivation of bacteria and multicellular parasites under laboratory conditions as well as the utilisation of these cultivation systems for the development of novel antiinfectives. The students will become familiar with the principles of microbial diagnostics, including microbial cultivation as well as DNA-based, microscopical, serological and physiological methods of diagnostic differentiation medical microbiology and hygiene. They will be able to set up experiments and to analyse and interpret data. Section virology: Practical knowledge on the detection of viral infections and pathogenetic alterations following viral infections.

Courses (type, number of weekly contact hours, language — if other than German)

P + S (no information on SWS (weekly contact hours) and course language available)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

methods of assessment: a) written examination (45 to 60 minutes) or b) log (10 to 20 pages) or c) oral examination of one candidate each (approx. 20 minutes) or d) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or e) presentation (20 to 30 minutes)

Allocation of places

Additional information

Workload

Teaching cycle

Referred to in LPO I (examination regulations for teaching-degree programmes)

Module appears in

Bachelor' degree (1 major) Biomedicine (2009)



Module	e title				Abbreviation	
	•	ogy and pathobiochemis edicine	03-98-PPC-092-m01			
Module coordinator Module offered by				Module offered by		
		Professorship Clinical Bic Center for Experimental B		Faculty of Medicine		
ECTS	Meth	od of grading	Only after succ. con	npl. of module(s)		
5	nume	rical grade				
Duratio	n	Module level	Other prerequisites			
1 seme	ster	undergraduate		site to assessment: ecified at the beginn	regular attendance of clinical de- ing of the course.	
Conten	ts					
cardiol bioche	ogy, er mical a	idocrinology, pneumolog	y, psychiatry and asp	ects of clinical mole	cted diseases from nephrology, cular biology. The focus is on the pective clinical diagnosis, treat-	
Intend	ed lear	ning outcomes				
		an understanding of how into clinical diagnosis a		biochemical and pa	thophysiological disease proces-	
Course	S (type, r	number of weekly contact hours, l	anguage — if other than Ger	rman)		
V + V (r	no infoi	mation on SWS (weekly o	contact hours) and co	urse language avail	able)	
		sessment (type, scope, langua ole for bonus)	ge — if other than German,	examination offered — if no	ot every semester, information on whether	
on of o	ne can		minutes) or d) oral ex	amination in groups	to 20 pages) or c) oral examinatiof up to 3 candidates (approx. 15	
Allocat	ion of _I	places				
Additio	nal inf	ormation				
Worklo	ad					
Teachi	ng cycl	e				
Referre	Referred to in LPO I (examination regulations for teaching-degree programmes)					
Module	e appea	ars in				
	achelor' degree (1 major) Biomedicine (2009) achelor' degree (1 major) Biomedicine (2013)					



Compulsory Electives IV

(15 ECTS credits)



Modul	e title	Abbreviation					
Practio	cal Cou	rse in Pharmacology and	03-98-PPT-092-m01				
Module coordinator M				Module offered by			
holder	of the	Chair of Pharmacology ar	nd Toxicology	Faculty of Medicine			
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)			
5	nume	rical grade					
Durati	on	Module level	Other prerequisites				
1 seme	ester	undergraduate			regular attendance of courses eginning of the course.		
Conte	nts						
					ation, radioligand binding, phare by micro adducts, comet-assay		
Intend	ed lear	ning outcomes					
They w	ill also		scopic analyses of sa		cal and toxicological techniques. al characterisation of selected		
	_	number of weekly contact hours, l					
P + S (no infor	mation on SWS (weekly o	contact hours) and co	ourse language avail	able)		
		sessment (type, scope, langua ole for bonus)	ge — if other than German,	examination offered — if no	et every semester, information on whether		
		ion in groups of up to 3 c tific publication (approx.		of a presentation (a	approx. 30 minutes) and prepara-		
Alloca	tion of	places					
Additio	onal inf	ormation					
Worklo	oad						
Teachi	Teaching cycle						
Referre	Referred to in LPO I (examination regulations for teaching-degree programmes)						
Modul	Module appears in						
	Bachelor' degree (1 major) Biomedicine (2009)						
Bache	Bachelor' degree (1 major) Biomedicine (2013)						



Module title					Abbreviation		
Introductory Neurobiology for students of biomedicine					03-98-PGN-092-m01		
Modul	Module coordinator Module offered by						
holder	holder of the Chair of Clinical Neurobiology Faculty of Medic			Faculty of Medicine			
ECTS	Meth	od of grading	Only after succ. con	ıpl. of module(s)			
5	nume	rical grade					
Duratio	on	Module level					
1 seme	ester	undergraduate			regular attendance of courses eginning of the course.		
Conter	nts						
		nmentals of neuroanatom agnosis, therapeutic opti			seases of the nervous system:		
Intend	ed lear	ning outcomes					
and fu	nction (ving oral presentatio	ns, they have develo	l knowledge about the structure ped the ability to critically reflect biology.		
Course	es (type, r	number of weekly contact hours, l	anguage — if other than Ger	rman)			
V + S +	- Ü (no i	nformation on SWS (wee	kly contact hours) an	d course language a	vailable)		
		sessment (type, scope, langua ole for bonus)	ge — if other than German, o	examination offered — if no	t every semester, information on whether		
on of o	ne can		minutes) or d) oral ex	amination in groups	to 20 pages) or c) oral examinati- of up to 3 candidates (approx. 15		
Allocat	tion of p	places	·				
Additio	onal inf	ormation					
Worklo	oad						
Teachi	ng cycl	e					
Referre	Referred to in LPO I (examination regulations for teaching-degree programmes)						
Modul	Module appears in						
	Bachelor' degree (1 major) Biochemistry (2011)						
I	_	ree (1 major) Biochemisti					
	_	ree (1 major) Biochemisti	•				
I	_	ree (1 major) Biomedicino	•				
Dacile	Bachelor' degree (1 major) Biomedicine (2013)						



Module title					Abbreviation
Bacterial genetics - Infectiology					03-98-PBG-092-m01
Module coordinator				Module offered by	
Institute of Molecular Infection Biology			r	Faculty of Medicine	
ECTS	Meth	od of grading	Only after succ. con	npl. of module(s)	
5	nume	rical grade			
Duratio	on	Module level	Other prerequisites		
1 semester undergraduate Admission prerequisite to assessm (lectures excluded) as specified at					
Conten	te				

Contents

Foundations and analytical approaches of bacterial genetics are taught based on selected questions from molecular microbiology. Genetic processes are analysed with the help of examples of gene transfer. Molecular genetic and functional biochemical pathways are presented using examples from microbiology.

Intended learning outcomes

Students have developed the ability to approach, analyse and interpret general problems in bacterial genetics based on individually assigned tasks, using techniques of modern molecular biology, microbiology and genetics. They also have developed skills in experimental design, bench work, data analysis and the presentation of scientific results both orally and in writing.

Courses (type, number of weekly contact hours, language — if other than German)

V + S + Ü (no information on SWS (weekly contact hours) and course language available)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

methods of assessment: a) written examination (45 to 60 minutes) or b) log (10 to 20 pages) or c) oral examination of one candidate each (approx. 20 minutes) or d) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or e) presentation (20 to 30 minutes)

Allocation of places

Biochemistry Bachelor's: no restrictions. Biochemistry Master's: 4 places. Places will be allocated by lot.

Additional information

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Workload

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Teaching cycle

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 $\textbf{Referred to in LPO I} \ \ (\text{examination regulations for teaching-degree programmes})$

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Module appears in

Bachelor' degree (1 major) Biomedicine (2009)

Bachelor' degree (1 major) Biomedicine (2013)

Master's degree (1 major) Biochemistry (2012)



Module	title			Abbreviation		
Parasitology					03-98-PMP-092-m01	
Module	coord	inator		Module offered by		
holder of the Professorship of Medicinical Parasitoloholder of the Professorship of Zoology I			σ,	Faculty of Medicine		
ECTS	TS Method of grading Only after succ. comp			pl. of module(s)		
5	nume	rical grade				
Duratio	n	Module level	Other prerequisites			
1 seme	Admission prerequisite to assessment: regular attendance of courses (lectures excluded) as specified at the beginning of the course.					
Contents						
	Methods for in vitro cultivation of parasitic helminths and free-living reference models. Genomic and transcriptomic analyses of helminth parasites. Virulence factors of helminth parasites and drug design and development of					

on the cell surface coat as major virulence factor and its manipulation by RNA interference. **Intended learning outcomes**

The students are familiar with fundamental methods for the development of drugs against helminths. The students are familiar with the principles of helminthology diagnostics as well as helminth genomics/transcriptomics. The students are familiar with the concept of neglected tropical diseases with an emphasis on the African sleeping sickness. They recognise the potential of modern genetic tools for the generation of novel strategies against diseases of poverty caused by parasites.

novel anthelminthics. Methods for the cell biological and genetic analysis of African trypanosomes. The focus is

Courses (type, number of weekly contact hours, language — if other than German)

V + S + Ü (no information on SWS (weekly contact hours) and course language available)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

methods of assessment: a) written examination (45 to 60 minutes) or b) log (10 to 20 pages) or c) oral examination of one candidate each (approx. 20 minutes) or d) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or e) presentation (20 to 30 minutes)

Allocation of places

Additional information

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Workload

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Teaching cycle

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Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor' degree (1 major) Biomedicine (2009)



Module title					Abbreviation	
Structural Biology					03-98-PGS-092-m01	
Module coordinator				Module offered by		
holder of the Chair of Structural Biology			gy	Faculty of Medicine		
ECTS	Meth	od of grading	Only after succ. cor	npl. of module(s)		
5	nume	rical grade				
Duratio	n	Module level	Other prerequisites	3		
1 semester undergraduate						
Conten	Contents					

This module will use examples from current research reflecting different topics to provide fundamental biological insights and to also illustrate the fundamental concepts of structural biology. Scientific projects may be selected from the following list: DNA repair, ubiquitin-dependent protein degradation, transport and anchoring of inhibitory neurotransmitter receptors and structure-based design of new pharmaceutical agents.

Intended learning outcomes

Students will gain the ability to solve problems in structural biology on the basis of individually assigned tasks, employing different techniques from the fields of molecular biology, biochemistry and crystallography. They will also acquire skills in the design of experiments, their performance and evaluation as well as in the oral and written presentation of scientific results.

Courses (type, number of weekly contact hours, language — if other than German)

V + S + Ü (no information on SWS (weekly contact hours) and course language available)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

methods of assessment: a) written examination (45 to 60 minutes) or b) log (10 to 20 pages) or c) oral examination of one candidate each (approx. 20 minutes) or d) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or e) presentation (20 to 30 minutes)

Allocation of places

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Additional information

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Workload

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Teaching cycle

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 $\textbf{Referred to in LPO I} \ \ (\text{examination regulations for teaching-degree programmes})$

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Module appears in

Bachelor' degree (1 major) Biomedicine (2009) Bachelor' degree (1 major) Biomedicine (2013)



Module title					Abbreviation		
Practical course in a research laboratory					03-98-PF2-132-m01		
Modul	e coord	inator		Module offered by			
Dean o	of Studi	es Biomedizin (Biomedic	ine)	Faculty of Medicine			
ECTS	Metho	od of grading	Only after succ. com	pl. of module(s)			
5	nume	rical grade					
Durati	on	Module level	Other prerequisites				
1 seme	ester	undergraduate			regular attendance of courses eginning of the course.		
Conte	nts						
Workir	ng in a r	esearch laboratory under	individual supervisi	on. The topic will var	y according to the lab selected.		
Intend	ed lear	ning outcomes					
		and their repertoire of exp familiar with workflows a			ically examine experimental data. boratories.		
Course	es (type, r	number of weekly contact hours, l	anguage — if other than Ger	man)			
P (no i	nformat	tion on SWS (weekly cont	act hours) and cours	e language available	e)		
		sessment (type, scope, langua ole for bonus)	ge $-$ if other than German, ϵ	examination offered — if no	t every semester, information on whether		
		iges) and presentation (a ssessment: German or E					
Alloca	tion of _I	olaces					
Additio	onal inf	ormation					
Workle	oad						
			,				
Teachi	Teaching cycle						
Referr	Referred to in LPO I (examination regulations for teaching-degree programmes)						
	Module appears in						
Bache	Bachelor' degree (1 major) Biomedicine (2013)						



Modul	Module title Abbreviation					
Cell Bi	ology				03-98-PZB-092-m01	
Module coordinator				Module offered by	1	
holder	of the	Chair of Medical Radiation	on and Cell Research	Faculty of Medicin	e	
ECTS	Meth	od of grading	Only after succ. con	npl. of module(s)		
5	nume	rical grade				
Duratio	on	Module level	Other prerequisites	sites		
1 seme	ster	undergraduate				
Conten	ıts					
Becoming familiar with basic cell biological principles via hands-on training and seminars. Major topics are the structural organisation of eukaryotic cells, cell-cell and cell-matrix interactions, proliferation, differentiation and apoptosis.						
Intended learning outcomes						
Problem-oriented handling of eukaryotic cells under sterile conditions and understanding of principles of techniques for the analysis of cells. Understanding the molecular basis of cell biology and cellular malfunctions and						

Courses (type, number of weekly contact hours, language — if other than German)

selected examples of current literature.

R + S (no information on SWS (weekly contact hours) and course language available)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

their significance for disease development. Independent extraction of relevant information and presentation of

methods of assessment: a) written examination (45 to 60 minutes) or b) log (10 to 20 pages) or c) oral examination of one candidate each (approx. 20 minutes) or d) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or e) presentation (20 to 30 minutes)

Allocation of places

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Additional information

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Workload

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Teaching cycle

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Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor' degree (1 major) Biomedicine (2009)



Modul	Module title Abbreviation					
Introduction to genetics and human genetics o				03-98-PGH-092-m01		
Module coordinator				Module offered by		
holder of the Chair of Clinical Biochemistry and Pathobiochemistry and holder of the Chair of Neurobiology and Genetics and Research Center for Infectious Diseases			eurobiology and Ge-	Faculty of Medicine		
ECTS	S Method of grading Only after succ. compl. of module(s)					
5	numerical grade					
Duration Module level Ot		Other prerequisites				
1 semester		undergraduate				
Conter	its					
by gen	Introduction to human genetics, general genetics and genetic diagnostics in human diseases: diseases caused by genetic instability, neurodegenerative diseases, hereditary cancer. Practical part: molecular genetic diagnosis, genetics of trypanosomes, genetic tools in Drosophila, optogenetics and thermogenetics.					
Intend	ed lear	ning outcomes				
lecular	Students will acquire a fundamental knowledge of human, trypanosome and Drosophila genetics as well as molecular genetic diagnostics and genetic counselling. They will develop an advanced knowledge of the genetics of selected diseases.					
Course	S (type, r	number of weekly contact hours, l	anguage — if other than Ger	man)		
P + V +	Ü (no i	nformation on SWS (wee	kly contact hours) an	d course language a	vailable)	
			${\sf ge-if}$ other than German, ${\sf or}$	examination offered — if no	ot every semester, information on whether	
	module is creditable for bonus)					
on of o	methods of assessment: a) written examination (45 to 60 minutes) or b) log (10 to 20 pages) or c) oral examination of one candidate each (approx. 20 minutes) or d) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or e) presentation (20 to 30 minutes)					
Allocation of places						
Additio	Additional information					
Worklo	ad					
Teaching cycle						
Referred to in LPO I (examination regulations for teaching-degree programmes)						
Modul	e appea	ars in				
	Bachelor' degree (1 major) Biomedicine (2009)					
Bachel	Bachelor' degree (1 major) Biomedicine (2013)					



Module title				Abbreviation	
Introduction to methods in experimental biomedicine			03-98-RVZ-132-m01		
Module coordinator				Module offered by	
holder	of the (Chair of Experimental Bio	medicine	Faculty of Medicine	
ECTS	Metho	od of grading	Only after succ. com	npl. of module(s)	
5	nume	rical grade			
Duration Module level Other prerequisites					
1 semester undergraduate		-			
Conten	ts				
questio	Fundamental knowledge and analytical approaches of experimental biomedicine are taught based on selected questions of platelet physiology and megakaryopoiesis. Emphasis is put on the generation and use of antibodies. Transgenic mouse models are used to elucidate the interplay underlying (patho-)physiological processes.				
Intende	ed learı	ning outcomes			
Students have developed the ability to approach, analyse and interpret experimental data obtained with the help of monoclonal antibodies, in particular in the field of platelet physiology. They also have developed skills in experimental design, bench work, data analysis and the interpretation of scientific literature as well as the presentation of scientific results in English.					
Course	S (type, n	umber of weekly contact hours, l	anguage — if other than Ger	rman)	
V + S (no information on SWS (weekly contact hours) and course language available)					
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)					
methods of assessment: a) written examination (45 to 60 minutes) or b) log (10 to 20 pages) or c) oral examination of one candidate each (approx. 20 minutes) or d) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or e) presentation (20 to 30 minutes) Language of assessment: German or English					
Allocation of places					
Additional information					
Workload					
Teaching cycle					
Referred to in LPO I (examination regulations for teaching-degree programmes)					
Module appears in					
Bachelor' degree (1 major) Biomedicine (2013)					



Module title Abbreviation				Abbreviation		
Bioinformatics 07-MS2BI-092-m01			07-MS2BI-092-m01			
Module	Module coordinator			Module offered by		
holder of the Chair of Bioinformatics				Faculty of Biology		
ECTS	Metho	od of grading	Only after succ. com	ompl. of module(s)		
5	nume	rical grade				
Duration Module level Othe		Other prerequisites	her prerequisites			
1 semester graduate						
Conten	Contents					
Advances and current results of bioinformatics are explained and discussed, this includes results from genome and sequence analysis, protein domains and protein families, large-scale data analysis (e. g. net generation sequences, proteomics data), analysis of different functional RNAs (e. g. miRNAs, lncRNAs).						
Intende	ed lear	ning outcomes				
	Understand recent results in bioinformatics. Discuss their implications. Have an advanced (Master) level knowledge of typical technologies and research questions in bioinformatics.					
Course	S (type, r	number of weekly contact hours, l	anguage — if other than Ger	man)		
V + Ü (r	V + Ü (no information on SWS (weekly contact hours) and course language available)					
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)						
a) written examination (30 to 60 minutes) and/or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups						
Allocation of places						
Additional information						
Workload						
Teaching cycle						
Referred to in LPO I (examination regulations for teaching-degree programmes)						
Module appears in						

Bachelor' degree (1 major) Biomedicine (2009) Bachelor' degree (1 major) Biomedicine (2013)



Subject-specific Key Skills

(15 ECTS credits)



Module title					Abbreviation
Laboratory Expertise in Biosciences					03-98-FSQ-FACH-132-m01
Module coordinator				Module offered by	
holder of the Chair of Molecular Infectional Welfare Officer of the University of		-,	Faculty of Medicine		
ECTS	CTS Method of grading		Only after succ. compl. of module(s)		
3	(not) successfully completed				
Duration		Module level	Other prerequisites		
1 semester		undergraduate			
Contents					

Part 1: Theoretical foundations of genetic engineering and genetic engineering safety regulations; applications of genetic engineering. Part 2: Theoretical and practical basic knowledge of animal welfare legislation, animal welfare ethics and laboratory animal science.

Intended learning outcomes

The students are familiar with methods of genetic engineering as well as relevant legal provisions regarding genetic engineering safety and biomaterials. They have the expertise to carry out or participate in animal experiments according to the guidelines of FELASA (Cat. B).

Courses (type, number of weekly contact hours, language — if other than German)

This module comprises 2 module components. Information on courses will be listed separately for each module component.

- o3-98-FSQ-GEN-1-132: V (no information on SWS (weekly contact hours) and course language available)
- o3-98-FSQ-Tier-1-132: V + P (no information on SWS (weekly contact hours) and course language available)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

Assessment in this module comprises the assessments in the individual module components as specified below. Unless stated otherwise, successful completion of the module will require successful completion of all individual assessments.

Assessment in module component 03-98-FSQ-GEN-1-132: Genetic Engineering and

- 1 ECTS, Method of grading: (not) successfully completed
- a) written examination (45 to 60 minutes) or b) log (10 to 20 pages) or c) oral examination of one candidate each (approx. 20 minutes) or d) oral examination in groups of up to 3 candidates (approx. 15 minutes per candidate) or e) presentation (20 to 30 minutes)

Assessment in module component 03-98-FSQ-Tier-1-132: Laboratory animal sciences Laboratory animal

- 2 ECTS, Method of grading: (not) successfully completed
- in accordance with official guidelines regarding animal welfare (GV-SOLAS (Society of Laboratory Animals) / FFLASA category B)

mais) / Telitor category b)
Allocation of places
-
Additional information
Workload
Teaching cycle



Referred to in LPO I (examination regulations for teaching-degree programmes)
Module appears in
Bachelor' degree (1 major) Biomedicine (2013)



Module title					Abbreviation	
From experiment to publication and ethics in science					03-98-FSQ-EPE-092-m01	
Module coordinator				Module offered by		
Dean o	f Studi	es Biomedizin (Biomedic	ine)	e) Faculty of Medicine		
ECTS	Metho	od of grading	Only after succ. con	compl. of module(s)		
2	(not)	successfully completed				
Duratio	Duration Module level		Other prerequisites			
1 semester undergraduate		By way of exception, additional prerequisites are listed in the section on assessments.				

Contents

Writing scientific texts: definition of topic, development of structure and outline, content production, review of and comment on secondary literature, time management. Scientific ethics: general bioethics, ethics of research involving human subjects, ethical implications of genetic screening.

Intended learning outcomes

Students acquire fundamental insights into the steps from the generation of scientific data to their publication. They acquire an insight into the ethical implications of research with particular respect to genetic issues and human self-determination.

Courses (type, number of weekly contact hours, language — if other than German)

This module comprises 2 module components. Information on courses will be listed separately for each module component.

- o3-98-FSQ-EXP-1-092: V (no information on SWS (weekly contact hours) and course language available)
- 03-98-FSQ-ETH-1-092: V (no information on SWS (weekly contact hours) and course language available)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

Assessment in this module comprises the assessments in the individual module components as specified below. Unless stated otherwise, successful completion of the module will require successful completion of all individual assessments.

Assessment in module component 03-98-FSQ-EXP-1-092: From experiment to publication - how science works

- 1 ECTS, Method of grading: (not) successfully completed
- preparation of educational materials and materials for demonstrations (approx. 10 pages)
- Other prerequisites: Admission prerequisite to assessment: regular attendance as specified at the beginning of the course.

Assessment in module component 03-98-FSQ-ETH-1-092: Ethics in Science

- 1 ECTS, Method of grading: (not) successfully completed
- preparation of educational materials and materials for demonstrations (approx. 10 pages)
- Other prerequisites: Admission prerequisite to assessment: regular attendance as specified at the beginning of the course.

Allocation of places --Additional information --Workload --Teaching cycle --Referred to in LPO I (examination regulations for teaching-degree programmes)



Module appears in

Bachelor' degree (1 major) Biomedicine (2009) Bachelor' degree (1 major) Biomedicine (2013)



Module title					Abbreviation
Radiation Safety and Protection					03-98-FSQ-STRA-092-m01
Module coordinator				Module offered by	
radiatio Würzbı	•	ection commissioner of t	he University of	Faculty of Medicine	
ECTS	Meth	od of grading	Only after succ. con	npl. of module(s)	
2	(not)	successfully completed			
Duratio	Duration Module level		Other prerequisites		
1 seme	1 semester undergraduate				

Contents

Course to acquire radiation protection qualification in accordance with the *Strahlenschutzverordnung* (Radiation Protection Ordinance, StrlSchV).

Intended learning outcomes

Acquisition of formal expertise for handling open and sealed radioactive substances in accordance with the *Strahlenschutzverordnung* (Radiation Protection Ordinance, StrlSchV).

 $\textbf{Courses} \ (\textbf{type, number of weekly contact hours, language} - \textbf{if other than German})$

V + S (no information on SWS (weekly contact hours) and course language available)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

2 written examinations (30 to 60 minutes each)

Allocation of places

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Additional information

Additional information on module duration: Courses will usually be offered in the form of a block course with two block sessions.

Workload

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Teaching cycle

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Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor' degree (1 major) Biomedicine (2009)

Bachelor' degree (1 major) Biomedicine (2013)

First state examination for the teaching degree Gymnasium Physics (2009)



Module title Abbreviation						
Selected	d courses from biology and me	edicine 1		03-98-FSQ-MB1-092-m01		
Module	coordinator		Module offered by			
Dean of	Studies Biomedizin (Biomedia	cine)	Faculty of Medicine	e		
ECTS	Method of grading	Only after succ. con	npl. of module(s)			
2	(not) successfully completed					
Duration	n Module level	Other prerequisites				
1 semes	ter undergraduate			regular attendance as specified proval by degree programme coor		
Content	S					
				er professional qualification. Reco be granted by the module coordi		
Intende	d learning outcomes					
	lents have acquired a broader s skills and improve their profe	-	hat enables them to	o enhance their interdisciplinary		
Courses	(type, number of weekly contact hours,	language — if other than Ge	rman)			
V (no inf	formation on SWS (weekly con	tact hours) and cours	e language availabl	e)		
	of assessment (type, scope, language creditable for bonus)	age — if other than German,	examination offered — if n	ot every semester, information on whether		
on of on		minutes) or d) oral ex	amination in groups	to 20 pages) or c) oral examinations of up to 3 candidates (approx. 15		
	on of places					
Addition	nal information					
Workloa	ıd					
Teaching	g cycle					
Referred	d to in LPO I (examination regulation	ns for teaching-degree progra	immes)			
Module	appears in					
Bachelo	Bachelor' degree (1 major) Biomedicine (2009)					
 Module	appears in		immes)			



Module title Abbreviation						
Selected courses from biology and medicine 2 03-98-FSQ-MB2-092-m01					03-98-FSQ-MB2-092-m01	
Modul	e coord	inator		Module offered by		
Dean c	f Studi	es Biomedizin (Biomedic	ine)	Faculty of Medicine		
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)		
4	(not)	successfully completed				
Duration	on	Module level	Other prerequisites			
1 seme	ester	undergraduate			regular attendance as specified proval by degree programme coor	
Conter	ıts					
					r professional qualification. Reco be granted by the module coordi	
Intend	ed lear	ning outcomes				
		have acquired a broader and improve their profe		hat enables them to	enhance their interdisciplinary	
Course	S (type, r	number of weekly contact hours,	language — if other than Ger	rman)		
V (no i	nformat	tion on SWS (weekly cont	tact hours) and cours	e language availabl	e)	
		sessment (type, scope, langua le for bonus)	ge — if other than German, o	examination offered — if n	ot every semester, information on whether	
on of o	ne can		minutes) or d) oral ex	amination in groups	to 20 pages) or c) oral examination of up to 3 candidates (approx. 15	
Allocat	tion of	olaces				
Additio	onal inf	ormation				
Worklo	ad					
Teachi	ng cycl	e				
Referre	ed to in	LPO I (examination regulation	s for teaching-degree progra	mmes)		
Modul	e appea	ars in				
Bachel	Bachelor' degree (1 major) Biomedicine (2009)					



ad cour		Module title Abbreviation				
eu cour	ses from other faculties	with a biomedical foo	Cus 1	03-98-FSQ-AF1-092-m01		
e coord	inator		Module offered by	y		
f Studie	es Biomedizin (Biomedic	ine)	Faculty of Medicir	ne		
Metho	od of grading	Only after succ. con	npl. of module(s)			
(not) s	successfully completed					
on	Module level	Other prerequisites				
ster	undergraduate					
ıts						
ıal qual	ification. Recognition (s					
ed learr	ning outcomes					
			hat enables them t	o enhance their interdisciplinary		
S (type, n	umber of weekly contact hours,	language — if other than Ger	rman)			
nformat	ion on SWS (weekly con	tact hours) and cours	e language availab	le)		
		age — if other than German,	examination offered — if	not every semester, information on whether		
ne cano	didate each (approx. 20	minutes) or d) oral ex	amination in group			
nal info	ormation					
ad						
ng cycl	e					
ed to in	LPO I (examination regulation	s for teaching-degree progra	mmes)			
e appea	rs in					
achelor' degree (1 major) Biomedicine (2009)						
	Method (not) son ster ster ster ster ster ster ster ster	Method of grading (not) successfully completed on Module level ster undergraduate sts s, in particular in the area of nance and qualification. Recognition (street by the module coordinator. ed learning outcomes dents have acquired a broader g skills and improve their profe s (type, number of weekly contact hours, and formation on SWS (weekly contact hours) d of assessment (type, scope, languate screditable for bonus) ds of assessment: a) written example candidate each (approx. 20 is per candidate) or e) presentate ion of places onal information and and eappears in	Method of grading (not) successfully completed on Module level Other prerequisites ster undergraduate Admission prerequi at the beginning of the dinator required. Its s, in particular in the area of natural sciences, offerential qualification. Recognition (successfully completed by the module coordinator. In the dearning outcomes Indents have acquired a broader range of knowledge the gradients have acquired have acqui	Method of grading (not) successfully completed on Module level		



Module title Abbreviation					Abbreviation		
Selected topics from other faculties with biomedical focu				2	03-98-FSQ-AF2-092-m01		
Module coordinator				Module offered by			
Dean o	of Studio	es Biomedizin (Biomedic	tine)	Faculty of Medicin	e		
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)			
4	(not)	successfully completed					
Duratio	on	Module level	Other prerequisites	i			
1 seme	ester	undergraduate			regular attendance as specified proval by degree programme coor-		
Conter	nts		•				
fession	nal qual				that contribute to further pro- completed) as assessment to be		
Intend	ed learı	ning outcomes					
		have acquired a broader and improve their profe		hat enables them to	o enhance their interdisciplinary		
Course	S (type, r	number of weekly contact hours,	language — if other than Ge	rman)			
V (no i	nformat	ion on SWS (weekly con	tact hours) and cours	e language availabl	e)		
		sessment (type, scope, langua le for bonus)	age — if other than German,	examination offered — if n	not every semester, information on whether		
on of o	ne can		minutes) or d) oral ex	amination in groups	o to 20 pages) or c) oral examinatiss of up to 3 candidates (approx. 15		
	tion of p						
Additio	onal inf	ormation					
Worklo	oad						
Teachi	ng cycl	e					
Referre	ed to in	LPO I (examination regulation	s for teaching-degree progra	ammes)			
Modul	e appea	rs in					
Bachel	achelor' degree (1 major) Biomedicine (2009)						
N I I							



Module	Module title Abbreviation						
Superv	ising T	utorials 1			03-98-FSQ-TUT1-092-m01		
Module	coord	inator		Module offered by			
Dean o	f Studi	es Biomedizin (Biomedic	ine)	Faculty of Medicine			
ECTS	Metho	od of grading	Only after succ. con	pl. of module(s)			
2	(not)	successfully completed					
Duratio	n	Module level	Other prerequisites				
1 seme	ster	undergraduate	Prior approval by de	gree programme cod	ordinator required.		
Conten	ts						
		as tutors. They support cipate as assistants in th			ct of courses and study planning, and lab courses.		
Intende	ed lear	ning outcomes					
					d way. They have gained expe- olying conflict resolution strate-		
Course	S (type, r	number of weekly contact hours, l	anguage — if other than Ger	man)			
T (no in	format	ion on SWS (weekly cont	act hours) and cours	e language available	e)		
		Sessment (type, scope, langua le for bonus)	ge — if other than German, (examination offered — if no	ot every semester, information on whether		
log (2 t	о з рав	ges)					
Allocat	ion of p	olaces					
Additio	nal inf	ormation					
Worklo	ad						
Teachi	ng cycl	e					
Referre	Referred to in LPO I (examination regulations for teaching-degree programmes)						
-							
Module	appea	ars in					
	Bachelor' degree (1 major) Biomedicine (2009)						
Bachel	Bachelor' degree (1 major) Biomedicine (2013)						



Modul	Module title Abbreviation						
Superv	ising T	utorials 2			03-98-FSQ-TUT2-092-m01		
Modul	e coord	inator		Module offered by			
Dean c	of Studio	es Biomedizin (Biomedic	ine)	Faculty of Medicine			
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)			
3	(not)	successfully completed					
Duratio	on	Module level	Other prerequisites				
1 seme	ester	undergraduate	Prior approval by de	gree programme cod	ordinator required.		
Conter	nts						
		cas tutors. They support cipate as assistants in th			ct of courses and study planning, and lab courses.		
Intend	ed lear	ning outcomes					
					d way. They have gained expe- olying conflict resolution strate-		
Course	es (type, r	number of weekly contact hours, l	anguage — if other than Ger	rman)			
T (no ii	nformat	ion on SWS (weekly cont	act hours) and course	e language available	<u>)</u>		
		sessment (type, scope, langua	ge — if other than German, o	examination offered — if no	ot every semester, information on whether		
log (2 1	to 3 pag	ges)					
Allocat	tion of p	olaces					
Additio	onal inf	ormation					
Worklo	oad						
Teachi	ng cycl	e					
Referre	Referred to in LPO I (examination regulations for teaching-degree programmes)						
Modul	e appea	ars in					
	Bachelor' degree (1 major) Biomedicine (2009)						
Bache	Bachelor' degree (1 major) Biomedicine (2013)						



Modul	Module title Abbreviation						
Superv	Supervising Tutorials 3 03-98-FSQ-TUT3-092-m01						
Module coordinator				Module offered by	ļ.		
Dean o	f Studie	es Biomedizin (Biomedic	ine)	Faculty of Medicine			
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)			
5	(not) s	successfully completed					
Duratio	on	Module level	Other prerequisites				
1 seme	ster	undergraduate	Prior approval by de	gree programme cod	ordinator required.		
Conter	its		,				
		as tutors. They support cipate as assistants in th			ct of courses and study planning, and lab courses.		
Intend	ed learr	ning outcomes					
					d way. They have gained expe- olying conflict resolution strate-		
Course	!S (type, n	umber of weekly contact hours, l	anguage — if other than Ger	rman)			
T (no ir	nformat	ion on SWS (weekly cont	act hours) and course	e language available	<u>)</u>		
		eessment (type, scope, langua le for bonus)	ge — if other than German, o	examination offered — if no	ot every semester, information on whether		
log (2 t	o 3 pag	es)					
Allocat	ion of p	olaces					
Additio	nal info	ormation	•				
Worklo	ad						
Teachi	ng cycl	e					
Referre	Referred to in LPO I (examination regulations for teaching-degree programmes)						
Modul	e appea	rs in					
	Bachelor' degree (1 major) Biomedicine (2009)						
Bachel	Bachelor' degree (1 major) Biomedicine (2013)						



Module title Abbreviation						
Journal Club 1					03-98-FSQ-LIT1-132-m01	
Module	e coord	inator		Module offered by		
		If Virchow Center for Expe	erimental Biomedici-	Faculty of Medicine		
ECTS	Meth	od of grading	Only after succ. con	npl. of module(s)		
2	(not)	successfully completed				
Duratio	n	Module level	Other prerequisites			
1 seme	ster	undergraduate		as specified at the b	regular attendance of courses eginning of the course. Not to be	
Conten	ts					
Studen	ts pres	ent selected recent publi	cations and discuss	their contents, meth	ods and results within the group.	
Intende	ed lear	ning outcomes				
Studen results		uire the ability to critically	y read scientific litera	ture, draw their own	conclusions and to evaluate the	
Course	S (type, i	number of weekly contact hours, l	anguage — if other than Ger	man)		
S (no ir	nforma	tion on SWS (weekly cont	act hours) and cours	e language available	2)	
		sessment (type, scope, langua ole for bonus)	ge — if other than German,	examination offered — if no	at every semester, information on whether	
		(approx. 15 minutes) Issessment: German or E	nglish			
Allocat	ion of	places	,			
Additio	nal inf	ormation				
Worklo	ad					
			,			
Teachi	Teaching cycle					
						
Referre	Referred to in LPO I (examination regulations for teaching-degree programmes)					
						
Module appears in						
Bachelor' degree (1 major) Biomedicine (2013)						



Module	Module title Abbreviation						
Journal Club 2 03-98-FSQ-LIT2-132-m					03-98-FSQ-LIT2-132-m01		
Module	coord	inator		Module offered by			
		f Virchow Center for Expe	erimental Biomedici-	Faculty of Medicine)		
ne			-				
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)			
4	(not)	successfully completed					
Duratio	n	Module level	Other prerequisites				
2 seme	ster	undergraduate		as specified at the b	regular attendance of courses beginning of the course. Not to be		
Conten	ts						
Studen	ts pres	ent selected recent publi	cations and discuss	their contents, meth	ods and results within the group.		
Intende	ed lear	ning outcomes					
Studen results		uire the ability to critically	/ read scientific litera	ture, draw their own	conclusions and to evaluate the		
Course	S (type, r	number of weekly contact hours, l	anguage — if other than Ge	rman)			
S (no ir	format	ion on SWS (weekly cont	act hours) and cours	e language available	e)		
		sessment (type, scope, langua le for bonus)	ge — if other than German,	examination offered — if no	ot every semester, information on whether		
		ns (approx. 15 minutes ea ssessment: German or E					
Allocat	ion of p	olaces					
Additio	nal inf	ormation					
Worklo	ad						
Teachi	ng cycl	e					
Referre	Referred to in LPO I (examination regulations for teaching-degree programmes)						
Module appears in							
Bachel	Bachelor' degree (1 major) Biomedicine (2013)						



Module	Module title Abbreviation						
Careers	Careers in Science 03-98-FSQ-KAR-092-m01						
Module coordinator				Module offered by			
Dean o	f Studie	es Biomedizin (Biomedic	ine)	Faculty of Medicine			
ECTS	Metho	od of grading	Only after succ. com	ıpl. of module(s)			
1	(not) s	successfully completed					
Duratio	n	Module level	Other prerequisites				
1 seme	ster	undergraduate					
Conten	ts		,				
and ca	reer pat les of s	ths in science gives an ov	verview of prospects.	Different types of fu	about the various career stages nding are discussed as well as ciliation of work and family com-		
Intend	ed learı	ning outcomes					
	sities in				science up to professorships at as well as essential sources of		
Course	S (type, n	umber of weekly contact hours, l	anguage — if other than Ger	man)			
V (no ir	nformat	ion on SWS (weekly cont	act hours) and cours	e language available	2)		
		sessment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	ot every semester, information on whether		
prepara	ation of	educational materials a	nd materials for dem	onstrations (approx.	10 pages)		
Allocat	ion of p	olaces					
Additio	nal inf	ormation					
Worklo	ad						
Teachi	Teaching cycle						
Referre	Referred to in LPO I (examination regulations for teaching-degree programmes)						
Module	e appea	rs in					
	Bachelor' degree (1 major) Biomedicine (2009)						



Modul	e title				Abbreviation
Excurs	ion				03-98-FSQ-EXK-092-m01
Modul	Module coordinator			Module offered by	
Dean c	of Studi	es Biomedizin (Biomedic	ine)	Faculty of Medicine	
ECTS	Meth	od of grading	Only after succ. con	pl. of module(s)	
1	(not)	successfully completed			
Duratio	on	Module level	Other prerequisites		
1 seme	1 semester undergraduate		Admission prerequisite to assessment: regular attendance of courses (lectures excluded) as specified at the beginning of the course. Prior approval by degree programme coordinator required.		
Conter	ıts	,			
Field tr	ip to se	elected institutions or cor	mpanies that are relev	ant to the life scien	ces.
Intend	ed lear	ning outcomes			
Studer	nts mak	ce contact with industry a	nd other potential em	iployers.	
Course	S (type, i	number of weekly contact hours,	language — if other than Ger	man)	
E (no i	nforma	tion on SWS (weekly cont	act hours) and cours	e language available	<u>e)</u>
		sessment (type, scope, langua ble for bonus)	ge — if other than German, o	examination offered — if no	ot every semester, information on whether
report	(1 to 2	pages)			
Alloca	tion of	places			
Additio	onal inf	ormation			
Worklo	oad				
Teachi	ng cycl	le			
Referre	ed to in	LPO I (examination regulation	s for teaching-degree progra	mmes)	
			3 - 10 - 1 F1-31-	·	
Modul	e appe	ars in			
Bache	Module appears in Bachelor' degree (1 major) Biomedicine (2009) Bachelor' degree (1 major) Biomedicine (2013)				



Module title					Abbreviation	
Orient	ational	Laboratory course			03-98-FSQ-F2PR-092-m01	
Modul	Module coordinator			Module offered by	I.	
Dean c	of Studi	es Biomedizin (Biomedic	ine)	Faculty of Medicine		
ECTS	Meth	od of grading	Only after succ. con	npl. of module(s)		
2	(not)	successfully completed				
Duratio	on	Module level	Other prerequisites			
1 seme	ester	undergraduate			regular attendance of courses beginning of the course.	
Conter	nts		•			
Studer	nts spe	nd 2 weeks at a laborato	ry and participate in r	outine work.		
Intend	ed lear	ning outcomes				
Studer	nts gain	first insights into routing	e lab work and acquir	e new practical skill	S.	
Course	es (type, i	number of weekly contact hours,	language — if other than Ge	rman)		
P (no i	nforma	tion on SWS (weekly con	tact hours) and cours	e language availabl	e)	
		sessment (type, scope, langua ole for bonus)	age — if other than German,	examination offered — if n	ot every semester, information on whether	
log (5 t	to 10 pa	nges)				
Allocat	tion of	places				
			-			
Additio	onal inf	ormation				
			-			
Worklo	oad					
Teachi	ng cycl	e				
Referre	ed to in	LPO I (examination regulation	s for teaching-degree progra	mmes)		
Modul	e appe	ars in				
		ree (1 major) Biomedicin	e (2009)			
Bachel	lor' deg	ree (1 major) Biomedicin	e (2013)			



Module title					Abbreviation		
Labora	tory Co	urse in biomedical resea	rch 1		03-98-FSQ-F2PR1-092-m01		
Module	coord	inator		Module offered by			
Dean o	f Studie	es Biomedizin (Biomedic	ine)	Faculty of Medicine			
ECTS	Metho	od of grading	Only after succ. com	pl. of module(s)			
3	(not) s	successfully completed					
Duratio	n	Module level	Other prerequisites				
1 seme	ster	undergraduate			regular attendance of courses eginning of the course.		
Conten	ts						
Studen	ts sper	nd 2 weeks working on a	small, well-defined s	cientific lab project.			
Intende	ed learı	ning outcomes					
		force previously acquired the lab. Students gain ex			nd learn how to apply theoretical of raw data.		
Course	S (type, n	number of weekly contact hours, I	anguage — if other than Ger	man)			
P (no in	format	ion on SWS (weekly cont	act hours) and cours	e language available	e)		
		sessment (type, scope, langua le for bonus)	ge — if other than German, ϵ	examination offered — if no	t every semester, information on whether		
log (5 to	o 10 pa	ges)					
Allocat	ion of p	olaces					
Additio	nal inf	ormation					
Worklo	ad						
Teaching cycle							
Referre	Referred to in LPO I (examination regulations for teaching-degree programmes)						
Module appears in							
	Bachelor' degree (1 major) Biomedicine (2009)						
Bachelor' degree (1 major) Biomedicine (2013)							



Module	e title				Abbreviation	
Labora	tory Co	ourse in biomedical resea	rch 2		03-98-FSQ-F2PR2-092-m01	
Module coordinator				Module offered by	I.	
Dean o	f Studi	es Biomedizin (Biomedic	ine)	Faculty of Medicine		
ECTS	Meth	od of grading	Only after succ. con	npl. of module(s)		
4	(not)	successfully completed				
Duratio	n	Module level	Other prerequisites			
1 seme	ster	undergraduate				
Conten	ts					
Studen	ts spe	nd 3 weeks working on a	small, well-defined s	cientific lab project.		
Intend	ed lear	ning outcomes				
		force previously acquired the lab. Students gain ex	· · · · · · · · · · · · · · · · · · ·	•	nd learn how to apply theoretical of raw data.	
		number of weekly contact hours,		·		
		tion on SWS (weekly cont			e)	
		sessment (type, scope, langua	ge — if other than German,	examination offered — if no	ot every semester, information on whether	
log (10	to 15 p	ages) and talk (approx. 1	o minutes)			
Allocat	ion of	places				
Additio	nal inf	ormation				
Worklo	ad					
Teachi	ng cycl	e				
Referre	d to in	LPO I (examination regulation	s for teaching-degree progra	ımmes)		
Module	e appe	ars in				
Bachel	or' deg	ree (1 major) Biomedicin	e (2009)			
Bachel	or' deg	ree (1 major) Biomedicin	e (2013)			



Module title Abbreviation						
Laboratory Course in biomedical research 3 03-98-FSQ-F2PR3-092-m01						
Module coordinator				Module offered by		
Dean o	f Studi	es Biomedizin (Biomedic	ine)	Faculty of Medicine		
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)		
5	(not)	successfully completed				
Duratio	n	Module level	Other prerequisites			
1 seme	ster	undergraduate			regular attendance of courses eginning of the course.	
Conten	ts					
Studen	its spei	nd 4 weeks working on a	small, well-defined s	cientific lab project.		
Intend	ed lear	ning outcomes				
		force previously acquired the lab. Students gain ex			nd learn how to apply theoretical of raw data.	
Course	S (type, r	number of weekly contact hours,	language — if other than Ger	rman)		
P (no ir	nformat	tion on SWS (weekly cont	tact hours) and cours	e language available	2)	
		sessment (type, scope, langua le for bonus)	age — if other than German, o	examination offered — if no	ot every semester, information on whether	
log (10	to 15 p	ages) and talk (approx. 1	o minutes)			
Allocat	ion of p	olaces				
Additio	nal inf	ormation				
Worklo	ad					
Teachi	ng cycl	e				
Referred to in LPO I (examination regulations for teaching-degree programmes)						
Module	e appea	ars in				
	Bachelor' degree (1 major) Biomedicine (2009)					
Bachel	Bachelor' degree (1 major) Biomedicine (2013)					



Module title					Abbreviation	
Learnii	ng stra	tegies and preparation fo		03-98-FSQ-LERN-092-m01		
Modul	e coord	linator		Module offered by		
Medica	al Psycl	nology and Psychotherap	у	Faculty of Medicine		
ECTS	Meth	od of grading	Only after succ. con	npl. of module(s)		
2	(not)	successfully completed				
Duratio	on	Module level	Other prerequisites			
1 seme	ester	undergraduate		site to assessment: inning of the course)	regular attendance of courses (as).	
Conter	nts					
as adv	ice on I		ng techniques and ti	me management. Du	e their university studies as well uring a lecture series and an ex- eparation.	
Intend	ed lear	ning outcomes				
		uire learning skills and te ety by efficiently preparin		m cope with the dem	nands of their courses and pre-	
Course	es (type,	number of weekly contact hours, l	anguage — if other than Ger	rman)		
V + S (ı	no info	rmation on SWS (weekly o	contact hours) and co	urse language avail	able)	
		sessment (type, scope, langua ble for bonus)	ge — if other than German, o	examination offered — if no	ot every semester, information on whether	
presen	tation	(approx. 15 minutes)				
Allocat	tion of	places				
Additio	onal inf	ormation				
Worklo	oad					
Teachi	ng cycl	le				
Referred to in LPO I (examination regulations for teaching-degree programmes)						
Modul	e appe	ars in				
	Bachelor' degree (1 major) Biomedicine (2009)					
Bachel	Bachelor' degree (1 major) Biomedicine (2013)					



Module	Module title Abbreviation						
Intercultural Competence					03-98-FSQ-IKK-092-m01		
Module	coord	inator		Module offered by			
Dean o	f Studi	es Biomedizin (Biomedic	ine)	Faculty of Medicine			
ECTS	Metho	od of grading	Only after succ. con	ipl. of module(s)			
3	(not)	successfully completed					
Duratio	n	Module level	Other prerequisites				
1 seme	ster	undergraduate			excluded) as specified at the be- erequisite to assessment.		
Conten	ts						
		of intercultural communic oration, international tea			problems, pathways to suc-		
Intende	ed lear	ning outcomes					
1		e been sensitised to inter sitivity towards cultural o			their own culture. They have de- n.		
Course	S (type, r	number of weekly contact hours, l	anguage — if other than Ger	rman)			
V + S (r	o infor	mation on SWS (weekly	contact hours) and co	urse language avail	able)		
		sessment (type, scope, langua le for bonus)	ge — if other than German, o	examination offered — if no	ot every semester, information on whether		
log (10	to 20 p	ages)					
Allocat	ion of p	olaces					
Additio	nal inf	ormation					
Worklo	ad						
Teachi	ng cycl	e					
Referred to in LPO I (examination regulations for teaching-degree programmes)							
Module appears in							
	Bachelor' degree (1 major) Biomedicine (2009)						
Bachel	Bachelor' degree (1 major) Biomedicine (2013)						



Module	e title	,		Abbreviation	
Individ	ual Cor	mpetences for Science			03-98-FSQ-NETW-092-m01
Module	e coord	inator	Module offered by		
Dean of Studies Biomedizin (Biomedic			ine) Faculty of Medicine		
ECTS	Metho	od of grading Only after succ. compl. of module(s			
3	(not)	successfully completed			
Duratio	n	Module level	Other prerequisites		
1 semester und		undergraduate	By way of exception assessments.	, additional prerequi	isites are listed in the section on

Contents

Identifying and formulating questions that are scientifically approachable, describing and explaining scientific phenomena and interpreting scientific evidence are key competences that are required, in addition to purely technical skills, to answer or solve scientific problems. Based on concrete examples, students interactively practise the respective skills in small groups and present their results.

Intended learning outcomes

In addition to honing their professional and methodological skills, the students develop and enhance their individual personal and interactive skills.

Courses (type, number of weekly contact hours, language — if other than German)

This module comprises 2 module components. Information on courses will be listed separately for each module component.

- 03-98-FSQ-NETW-1-092: S (no information on SWS (weekly contact hours) and course language available)
- 03-98-FSQ-BEW-1-092: S (no information on SWS (weekly contact hours) and course language available)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

Assessment in this module comprises the assessments in the individual module components as specified below. Unless stated otherwise, successful completion of the module will require successful completion of all individual assessments.

Assessment in module component 03-98-FSQ-NETW-1-092: Personal skills and scientific networking

- 2 ECTS, Method of grading: (not) successfully completed
- term paper (5 to 10 pages) or preparation of educational materials and materials for demonstrations (approx. 10 pages)
- Other prerequisites: Admission prerequisite to assessment: regular attendance of courses (lectures excluded) as specified at the beginning of the course.

Assessment in module component 03-98-FSQ-BEW-1-092: Job Application in the Life Sciences

- 1 ECTS, Method of grading: (not) successfully completed
- •
- Other prerequisites: Admission prerequisite to assessment: regular attendance of courses (lectures excluded) as specified at the beginning of the course.

Allocation of places	
Additional information	
Workload	
-	
Teaching cycle	



Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor' degree (1 major) Biomedicine (2009)