Julius-Maximilians-
UNIVERSITÄT
WÜRZBURG

Subdivided Module Catalogue

for the Subject

Experimental medicine

as a Master's with 1 major

with the degree "Master of Science"

(120 ECTS credits)

Examination regulations version: 2013
Responsible: Faculty of Medicine

Course of Studies - Contents and Objectives

The Faculty of Medicine at JMU offers a Master of Science (M.Sc.) in Experimental Medicine with a strong emphasis on research. The degree Master of Science offers graduates further professional qualifications as well as extensive research experience. The degree program is suited to students who have completed their studies in Medicine (as their first professional degree) and have a strong interest in fundamental research in the fields of natural sciences and medicine. The degree program allows students to deepen their fundamental knowledge of the natural sciences within the field of Medicine and introduces current methods of biomedical research. The degree program is strongly research oriented and covers current scientific issues in the field of biomedicine as well as experimental approaches and methodological principles within medicine, biology, chemistry, and physics. Through thesis work, students show that they are capable of illustrating and handling a defined issue in the field of experimental medicine from an academic perspective using familiar or modified methods within a given time frame. The Master's examination should confirm the candidate's grasp of biomedical research and his or her ability to independently apply scientific methods. A successfully completed Master's degree qualifies the candidate for admittance to a doctoral program pursuant to the respective and current doctoral program guidelines.

Abbreviations used

Course types: **E** = field trip, **K** = colloquium, **O** = conversatorium, **P** = placement/lab course, **R** = project, **S** = seminar, **T** = tutorial, **Ü** = exercise, **V** = 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:

ASPO2009

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

15-Jul-2013 (2013-84)

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.

The subject is divided into

Abbreviation	Module title	ECTS credits	Method of grading	page
Compulsory Courses (30 ECTS credits)				
03-EM-MVH-092-m01	Microbiology, Virology, Hygiene	5	NUM	11
03-EM-PA-092-m01	Pathology	5	NUM	13
03-EM-PT-092-m01	Pharmacology and Toxicology	5	NUM	14
03-EM-MP-132-m01	Molecular biology methods	15	NUM	10
Compulsory Electives (60 ECTS credits)				
Subfield Practical Experimental Medicine (45 ECTS credits)				
03-EM-InIm-132-m01	Infection and Immunity	15	NUM	5
03-EM-MO-132-m01	Molecular Oncology	15	NUM	9
03-EM-SFP-132-m01	Structure and Function of Proteins	15	NUM	22
03-EM-KVB-132-m01	Cardiovascular Biology	15	NUM	6
03-EM-NBP-132-m01	Neurobiology and Neurophysiology	15	NUM	12
03-SRM-132-m01	Stem Cells and Regenerative Medicine	15	NUM	23
Subfield Theoretical Experimental Medicine (15 ECTS credits)				
03-EM-Sem1-132-m01	Seminar Infection and Immunity	5	NUM	15
03-EM-Sem2-132-m01	Seminar Molecular Oncology	5	NUM	16
03-EM-Sem3-132-m01	Seminar Structure and Function of Proteins	5	NUM	17
03-EM-Sem4-132-m01	Seminar Cardiovascular Biology	5	NUM	18
03-EM-Sem5-132-m01	Seminar Neurobiology and Neurophysiology	5	NUM	19
03-EM-Sem6-132-m01	Seminar Stem Cells and Regenerative Medicine	5	NUM	20
03-EM-Sem7-132-m01	Seminar Experimental Medical Research Methods	5	NUM	21
Thesis (30 ECTS credits)				
03-EM-MA-132-m01	Final Examination Experimental Medicine	30	NUM	7

Module title			Abbreviation
Infection and Immunity			03-EM-InIm-132-m01
Module coordinator		**Module offered by**	
Institute of Virology and Immunobiology		Faculty of Medicine	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
15	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

Students spend 4 to 6 weeks working on their own small, well-defined scientific lab project in the area of infection and immunity and present the results of the laboratory project at the Institute seminar.

Intended learning outcomes

Participating in clinically-oriented research projects, students gain initial hands-on experience. They reinforce previously acquired lab skills, acquire new lab techniques, and learn how to apply theoretical knowledge in the lab. Students gain expertise in the analysis and presentation of raw data.

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-EM-InIm-1-132: P (no information on SWS (weekly contact hours) and course language available)
- 03-EM-InIm-2-132: K (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 can be chosen to earn a 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-EM-InIm-1-132: Practical Training Infection and Immunity

- 10 ECTS, Method of grading: numerical grade
- term paper (minimum 10 pages, ready-to-publish written summary of results of experiments)
- Language of assessment: German, English

Assessment in module component 03-EM-InIm-2-132: Colloquium Infection and Immunity

- 5 ECTS, Method of grading: numerical grade
- oral presentation and discussion of results of lab course (approx. 15 to 20 minutes)
- Language of assessment: German, English

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

Master's degree (1 major) Experimental medicine (2013)

Module title			Abbreviation
Cardiovascular Biology			03-EM-KVB-132-m01
Module coordinator		**Module offered by**	
holder of the Chair of Experimental Biomedicine		Faculty of Medicine	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
15	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

Students spend 4 to 6 weeks working on their own small, well-defined scientific lab project in the area of cardiovascular biology and present the results of the laboratory project at the Institute seminar.

Intended learning outcomes

Participating in clinically-oriented research projects, students gain initial hands-on experience. They reinforce previously acquired lab skills, acquire new lab techniques, and learn how to apply theoretical knowledge in the lab. Students gain expertise in the analysis and presentation of raw data.

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-EM-KVB-1-132: P (no information on SWS (weekly contact hours) and course language available)
- 03-EM-KVB-2-132: K (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 can be chosen to earn a 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-EM-KVB-1-132: Practical Training Cardiovascular Biology

- 10 ECTS, Method of grading: numerical grade
- term paper (minimum 10 pages, ready-to-publish written summary of results of experiments)
- Language of assessment: German, English

Assessment in module component 03-EM-KVB-2-132: Colloquium Cardiovascular Biology

- 5 ECTS, Method of grading: numerical grade
- oral presentation and discussion of results of lab course (approx. 15 to 20 minutes)
- Language of assessment: German, English

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

Master's degree (1 major) Experimental medicine (2013)

Module title	Abbreviation
Final Examination Experimental Medicine	03-EM-MA-132-m01

Module coordinator	Module offered by
chairperson of examination committee of complementary non-degree programme Experimentelle Medizin (Experimental Medicine)	Faculty of Medicine

ECTS	Method of grading	Only after succ. compl. of module(s)
30	numerical grade	--

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

Students conduct a scientific research project, using appropriate methods and adhering to the principles of good scientific practice. They document and discuss their work in a thesis and defend it in a final colloquium.

Intended learning outcomes

Students are able to independently carry out scientific work according to the rules of good scientific practice. They are able to document and, where necessary, adjust their research as well as to interpret their findings in a larger context. Students are able to defend their work in front of a professional audience.

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.

- 03-EM-MA-2-132: K (no information on language and number of weekly contact hours available)
- 03-EM-MA-1-132: A (no information on language and number of weekly contact hours available)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a 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-EM-MA-2-132: Kolloquium zur Masterarbeit

- 5 ECTS credits, method of grading: numerical grade
- Abschlusskolloquium (approx. 45 minutes)
- Language of assessment: German or English
- Only after succ. compl. of module component(s): Teilmodul 03-EM-MA-2 setzt Bestehen von Teilmodul 03-EM-MA-1 voraus.

Assessment component to module component 03-EM-MA-1-132: Masterarbeit "Experimentelle Medizin"

- 25 ECTS credits, method of grading: numerical grade
- written thesis
- Language of assessment: German or English

Allocation of places

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Additional information

Additional information listed separately for each module component.

- 03-EM-MA-1-132: Additional information on module duration: 6 months.
- 03-EM-MA-2-132: --

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
Master's degree (1 major) Experimental medicine (2013)

Module title			Abbreviation
Molecular Oncology			03-EM-MO-132-m01
Module coordinator		**Module offered by**	
holder of the Chair of Biochemistry and Molecular Biology			
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
15	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

Students spend 4 to 6 weeks working on their own small, well-defined scientific lab project in the area of molecular oncology and present the results of the laboratory project at the Institute seminar.

Intended learning outcomes

Participating in clinically-oriented research projects, students gain initial hands-on experience. They reinforce previously acquired lab skills, acquire new lab techniques, and learn how to apply theoretical knowledge in the lab. Students gain expertise in the analysis and presentation of raw data.

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-EM-MO-1-132: P (no information on SWS (weekly contact hours) and course language available)
- 03-EM-MO-2-132: K (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 can be chosen to earn a 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-EM-MO-1-132: Practical Training Molecular Oncology

- 10 ECTS, Method of grading: numerical grade
- term paper (minimum 10 pages, ready-to-publish written summary of results of experiments)
- Language of assessment: German, English

Assessment in module component 03-EM-MO-2-132: Colloquium Molecular Oncology

- 5 ECTS, Method of grading: numerical grade
- oral presentation and discussion of results of lab course (approx. 15 to 20 minutes)
- Language of assessment: German, English

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

Master's degree (1 major) Experimental medicine (2013)

Module title			Abbreviation
Molecular biology methods			03-EM-MP-132-m01
Module coordinator		**Module offered by**	
Institute of Hygiene and Microbiology / RVZ		Faculty of Medicine	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
15	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

Students complete a four-week, full-time molecular biology basic lab course with a focus on DNA, RNA, bioinformatics, proteins, cell biology, microscopy in theory as well as practical exercises.

Intended learning outcomes

The students have developed a deep knowledge of fundamental analysis/investigative methods of molecular and cell biology. They are able to discuss their results.

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 can be chosen to earn a bonus)

lab course assessment part I: written elaboration of lab reports (approx. 10 to 20 pages); lab course assessment part II: presentation (20 minutes) and/or written examination (30 minutes, including multiple choice questions)

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

Master's degree (1 major) Experimental medicine (2013)

Module title			Abbreviation
Microbiology, Virology, Hygiene			03-EM-MVH-092-m01
Module coordinator		**Module offered by**	
Institute of Hygiene and Microbiology		Faculty of Medicine	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

Foundations of clinical and theoretical medicine in microbiology, virology and hygiene with examination of one candidate each.

Intended learning outcomes

Students gain a deeper understanding of infection and immunity with a view to research application.

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

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 can be chosen to earn a bonus)

oral examination of one candidate each (approx. 25 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

Master's degree (1 major) Experimental medicine (2009)
Master's degree (1 major) Experimental medicine (2013)

Module title			Abbreviation
Neurobiology and Neurophysiology			03-EM-NBP-132-m01
Module coordinator		**Module offered by**	
holder of the Chair of Clinical Neurobiology		Faculty of Medicine	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
15	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

Students spend 4 to 6 weeks working on their own small, well-defined scientific lab project in the area of neurobiology and neurophysiology and present the results of the laboratory project at the Institute seminar.

Intended learning outcomes

Participating in clinically-oriented research projects, students gain initial hands-on experience. They reinforce previously acquired lab skills, acquire new lab techniques, and learn how to apply theoretical knowledge in the lab. Students gain expertise in the analysis and presentation of raw data.

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-EM-NBP-1-132: P (no information on SWS (weekly contact hours) and course language available)
- 03-EM-NBP-2-132: K (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 can be chosen to earn a 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-EM-NBP-1-132: Practical Training Neurobiology and Neurophysiology

- 10 ECTS, Method of grading: numerical grade
- term paper (minimum 10 pages, ready-to-publish written summary of results of experiments)
- Language of assessment: German, English

Assessment in module component 03-EM-NBP-2-132: Colloquium Neurobiology and Neurophysiolog

- 5 ECTS, Method of grading: numerical grade
- oral presentation and discussion of results of lab course (approx. 15 to 20 minutes)
- Language of assessment: German, English

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

Master's degree (1 major) Experimental medicine (2013)

Module title			Abbreviation
Pathology			03-EM-PA-092-m01
Module coordinator		**Module offered by**	
holder of the Chair of Pathology		Faculty of Medicine	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

Foundations of clinical and theoretical medicine in pathology with examination of one candidate each.

Intended learning outcomes

Students gain a deeper understanding of pathology with a view to research application.

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

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 can be chosen to earn a bonus)

oral examination of one candidate each (approx. 25 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

Master's degree (1 major) Experimental medicine (2009)
Master's degree (1 major) Experimental medicine (2013)

Module title			Abbreviation
Pharmacology and Toxicology			03-EM-PT-092-m01
Module coordinator		**Module offered by**	
holder of the Chair of Pharmacology and Toxicology		Faculty of Medicine	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
2 semester	graduate	--	

Contents

Foundations of clinical and theoretical medicine in pharmacology and toxicology with examination of one candidate each.

Intended learning outcomes

Students gain a deeper understanding of pharmacology and toxicology with a view to research application.

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

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 can be chosen to earn a bonus)

oral examination of one candidate each (approx. 25 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

Master's degree (1 major) Experimental medicine (2009)
Master's degree (1 major) Experimental medicine (2013)

Module title			Abbreviation
Seminar Infection and Immunity			03-EM-Sem1-132-m01
Module coordinator		**Module offered by**	
Institute of Virology and Immunobiology		Faculty of Medicine	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

Semester-long, integrated scientific seminar in small groups with exercise, discussion and presentations/talks by students, among others on current literature and/or selected special lectures covering the fields of virology and immunobiology.

Intended learning outcomes

Advanced insights into the focuses chosen for the in-depth scientific study of the selected specialist area. Students are able to evaluate relevant specific information, to present it in a professional manner and to discuss it with others. Students acquire a critical understanding of the most important theories, principles and methods of individual issues within the subject.

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

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 can be chosen to earn a bonus)

presentation (approx. 15 to 20 minutes) and written summary (approx. 1 page)
Language of assessment: German, English

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

Master's degree (1 major) Experimental medicine (2013)

Module title			Abbreviation
Seminar Molecular Oncology			03-EM-Sem2-132-m01
Module coordinator		**Module offered by**	
holder of the Chair of Biochemistry and Molecular Biology			
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

Semester-long, integrated scientific seminar in small groups with exercise, discussion and presentations/talks by students, among others on current literature and/or selected special lectures covering the field of molecular oncology.

Intended learning outcomes

Advanced insights into the focuses chosen for the in-depth scientific study of the selected specialist area. Students are able to evaluate relevant specific information, to present it in a professional manner and to discuss it with others. Students acquire a critical understanding of the most important theories, principles and methods of individual issues within the subject.

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

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 can be chosen to earn a bonus)

presentation (approx. 15 to 20 minutes) and written summary (approx. 1 page)
Language of assessment: German, English

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

Master's degree (1 major) Experimental medicine (2013)

Module title			Abbreviation
Seminar Structure and Function of Proteins			03-EM-Sem3-132-m01
Module coordinator		**Module offered by**	
holder of the Chair of Structural Biology		Faculty of Medicine	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

Semester-long, integrated scientific seminar in small groups with exercise, discussion and presentations/talks by students, among others on current literature and/or selected special lectures covering the field of structure and function of proteins.

Intended learning outcomes

Advanced insights into the focuses chosen for the in-depth scientific study of the selected specialist area. Students are able to evaluate relevant specific information, to present it in a professional manner and to discuss it with others. Students acquire a critical understanding of the most important theories, principles and methods of individual issues within the subject.

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

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 can be chosen to earn a bonus)

presentation (approx. 15 to 20 minutes) and written summary (approx. 1 page)

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

Master's degree (1 major) Experimental medicine (2013)

Module title			Abbreviation
Seminar Cardiovascular Biology			03-EM-Sem4-132-m01
Module coordinator		**Module offered by**	
holder of the Chair of Experimental Biomedicine		Faculty of Medicine	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

Semester-long, integrated scientific seminar in small groups with exercise, discussion and presentations/talks by students, among others on current literature and/or selected special lectures covering the field of cardiovascular biology.

Intended learning outcomes

Advanced insights into the focuses chosen for the in-depth scientific study of the selected specialist area. Students are able to evaluate relevant specific information, to present it in a professional manner and to discuss it with others. Students acquire a critical understanding of the most important theories, principles and methods of individual issues within the subject.

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

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 can be chosen to earn a bonus)

presentation (approx. 15 to 20 minutes) and written summary (approx. 1 page)

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

Master's degree (1 major) Experimental medicine (2013)

Module title			Abbreviation
Seminar Neurobiology and Neurophysiology			03-EM-Sem5-132-m01
Module coordinator		**Module offered by**	
holder of the Chair of Clinical Neurobiology		Faculty of Medicine	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

Semester-long, integrated scientific seminar in small groups with exercise, discussion and presentations/talks by students, among others on current literature and/or selected special lectures covering the field of neurobiology and neurophysiology.

Intended learning outcomes

Advanced insights into the focuses chosen for the in-depth scientific study of the selected specialist area. Students are able to evaluate relevant specific information, to present it in a professional manner and to discuss it with others. Students acquire a critical understanding of the most important theories, principles and methods of individual issues within the subject.

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

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 can be chosen to earn a bonus)

presentation (approx. 15 to 20 minutes) and written summary (approx. 1 page)

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

Master's degree (1 major) Experimental medicine (2013)

Module title			Abbreviation
Seminar Stem Cells and Regenerative Medicine			03-EM-Sem6-132-m01
Module coordinator		**Module offered by**	
Institute of Medical Radiology and Cell Research (MSZ)		Faculty of Medicine	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

In this module, current problems in the research areas of stem cell biology, cellular differentiation and regenerative medicine are discussed and specific solutions are taught.

Intended learning outcomes

Students have developed the ability to approach, analyse and critically interpret problems in stem cell biology, cellular differentiation and regenerative medicine, taking into account current literature.

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

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 can be chosen to earn a bonus)

presentation (approx. 15 to 20 minutes) and written summary (approx. 1 page)
Language of assessment: German, English

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

Master's degree (1 major) Experimental medicine (2013)

Module title			Abbreviation
Seminar Experimental Medical Research Methods			03-EM-Sem7-132-m01
Module coordinator		**Module offered by**	
Institute of Hygiene and Microbiology		Faculty of Medicine	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

In this module, current problems in the research area of experimental medicine are discussed and specific solutions are taught.

Intended learning outcomes

Students have developed the ability to approach, analyse and critically interpret current problems in experimental medicine, taking into account current literature.

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

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 can be chosen to earn a bonus)

presentation (approx. 15 to 20 minutes) and written summary (approx. 1 page)
Language of assessment: German, English

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

Master's degree (1 major) Experimental medicine (2013)

Module title			Abbreviation
Structure and Function of Proteins			03-EM-SFP-132-m01
Module coordinator		**Module offered by**	
holder of the Chair of Structural Biology		Faculty of Medicine	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
15	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

Students spend 4 to 6 weeks working on their own small, well-defined scientific lab project in the area of the structure and function of proteins and present the results of the laboratory project at the Institute seminar.

Intended learning outcomes

Participating in clinically-oriented research projects, students gain initial hands-on experience. They reinforce previously acquired lab skills, acquire new lab techniques, and learn how to apply theoretical knowledge in the lab. Students gain expertise in the analysis and presentation of raw data.

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-EM-SFP-1-132: P (no information on SWS (weekly contact hours) and course language available)
- 03-EM-SFP-2-132: K (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 can be chosen to earn a 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-EM-SFP-1-132: Practical Training Structure and Function of Proteins

- 10 ECTS, Method of grading: numerical grade
- term paper (minimum 10 pages, ready-to-publish written summary of results of experiments)
- Language of assessment: German, English

Assessment in module component 03-EM-SFP-2-132: Colloquium Structure and Function of Proteins

- 5 ECTS, Method of grading: numerical grade
- oral presentation and discussion of results of lab course (approx. 15 to 20 minutes)
- Language of assessment: German, English

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

Master's degree (1 major) Experimental medicine (2013)

Module title			Abbreviation
Stem Cells and Regenerative Medicine			03-SRM-132-m01
Module coordinator		**Module offered by**	
Institute of Medical Radiology and Cell Research (MSZ)		Faculty of Medicine	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
15	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

In this module, current problems in the research areas of stem cell biology, cellular differentiation and regenerative medicine are discussed and specific solutions are taught.

Intended learning outcomes

Students have developed the ability to approach, analyse and critically interpret problems in stem cell biology, cellular differentiation and regenerative medicine, taking into account current literature.

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-SRM-1-132: P (no information on SWS (weekly contact hours) and course language available)
- 03-SRM-2-132: K (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 can be chosen to earn a 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-SRM-1-132: Practical Training Stem Cells and Regenerative Medicine

- 10 ECTS, Method of grading: numerical grade
- term paper (minimum 10 pages, ready-to-publish written summary of results of experiments)
- Language of assessment: German, English

Assessment in module component 03-SRM-2-132: Colloquium Stem Cells and Regenerative Medicine

- 5 ECTS, Method of grading: numerical grade
- oral presentation and discussion of results of lab course (approx. 15 to 20 minutes)
- Language of assessment: German, English

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

Master's degree (1 major) Experimental medicine (2013)