

**Compulsory modules Medical Life Sciences**

<b>mlsMedCompact-01a</b>		<b>Basics of medical science and terminology</b>						
<b>In which semester</b>	<b>Duration</b>			<b>Status</b>	<b>Admission requirements</b>	<b>Credit points/workload in hrs</b>		
1st +2nd semester	2 semesters			Comp.		6/ 180		
<b>Component</b>	<b>Type of instruction</b>	<b>Contact hrs</b>	<b>CP<sup>1</sup></b>	<b>Status</b>	<b>Type of examination</b>	<b>Evaluation</b>	<b>Weight</b>	
Human biology for molecular disease research (1st semester)	Lecture with practical*	4	3	Comp.	Multi-part exam part 1: Oral exam	graded	50 %	
Pharmacology (2nd semester)	Lecture	3	3	Comp.	Multi-part exam part 2: Written exam		50%	
<b>mlsIntroMed-01a</b>		<b>Clinical manifestations of diseases and cell biology for clinical research</b>						
<b>In which semester</b>	<b>Duration</b>			<b>Status</b>	<b>Admission requirements</b>	<b>Credit points/workload in hrs</b>		
1st semester	1 semester			Comp.		6/ 180		
<b>Component</b>	<b>Type of instruction</b>	<b>Contact hrs</b>	<b>CP</b>	<b>Status</b>	<b>Type of examination</b>	<b>Evaluation</b>	<b>Weight</b>	
Cell biology for clinical research	Lecture	2	2	Comp.	Multi-part exam part 1: Oral exam	graded	50%	
	Seminar	1	1	Comp.				
Basics of clinical manifestations of diseases	Lecture	2	2	Comp.	Multi-part exam part 2: Written exam		50%	
Diagnostics lab	Tutorial*	1	1	Comp.				
<b>mlsMolBio-01a</b>		<b>Basics of molecular research</b>						
<b>In which semester</b>	<b>Duration</b>			<b>Status</b>	<b>Admission requirements</b>	<b>Credit points/workload</b>		
1st semester	1 semester			Comp.		8/ 240		
<b>Component</b>	<b>Type of instruction</b>	<b>Contact hrs</b>	<b>CP</b>	<b>Status</b>	<b>Type of examination</b>	<b>Evaluation</b>	<b>Weight</b>	
Basics of molecular biology	Lecture	3	2	Comp.	Written exam	passed		
	Tutorial	1	1	Comp.				
	Practical course*	5	5	Comp.	Interviews at start/end of lab sessions (combined exam)			
<b>mlsMolPatholImmu-01a</b>		<b>Pathology + Immunology</b>						
<b>In which semester</b>	<b>Duration</b>			<b>Status</b>	<b>Admission requirements</b>	<b>Credit points/workload in hrs</b>		
1st +2nd semester	2 semesters			Comp.		8/ 240		
<b>Component</b>	<b>Type of instruction</b>	<b>Contact hrs</b>	<b>CP</b>	<b>Status</b>	<b>Type of examination</b>	<b>Evaluation</b>	<b>Weight</b>	
Introduction to immunology (1st sem.)	Lecture	2	1	Comp.	Oral exam (2nd sem.)	graded		
Introduction to molecular immunology (2nd sem.)	Lecture	2	1	Comp.				
Basics of pathology (1st sem.)	Lecture	3	3	Comp.				
Molecular pathology (2nd sem.)	Lecture	1	1	Comp.				
	Seminar	1	2	Comp.				

\* Classes with mandatory attendance

mIsScience Method-01a		Methodology of scientific research					
In which semester	Duration			Status	Admission requirements	Credit points/workload in hrs	
1st semester	1 semester			Comp.		6/ 180	
Component	Type of instruction	Contact hrs	CP	Status	Type of examination	Evaluation	Weight
Systems biology	Tutorial	2	1	Comp.	Written assignments during semester	passed	
	Lecture	1	1				
Introduction to medical statistics and evidence-based medicine	Lecture	2	2	Comp.	Written exam		
	Tutorial	1	2	Comp.			
mIsSoftSkills-01a		Skills for scientific research					
In which semester	Duration			Status	Admission requirements	Credit points/workload in hrs	
1st semester	1 semester			Comp.		3/ 90	
Component	Type of instruction	Contact hrs	CP	Status	Type of examination	Evaluation	Weight
Orientation course: Studies and career	Seminar	2	2	Comp.	-	passed	
Career Day: Molecular biology as a career	Workshop*	2	1	Comp.	-		
mIsProjects-01a		Project planning					
In which semester	Duration			Status	Admission requirements	Credit points/workload in hrs	
3rd sem.	2 semesters			Comp.	Active preparation of block seminar	3/ 90	
Component	Type of instruction	Contact hrs	CP	Status	Type of examination	Evaluation	Weight
Project planning and management	Seminar	2	2	Comp.	Oral presentation project proposal in teamwork	passed	
	Self-managed teamwork	1	1	Comp.			
mIsGenetics-01a		Human genetics/Scientific studies in medical research					
In which semester	Duration			Status	Admission requirements	Credit points/workload in hrs	
3rd semester	1 semester			Comp.		5/ 150	
Component	Type of instruction	Contact hrs	CP	Status	Type of examination	Evaluation	Weight
Designing and realizing scientific studies (2 <sup>nd</sup> sem.)	Lecture	1	1	Comp.	Multi-part exam part 1: Oral presentation	graded	50%
	Seminar	1	1	Comp.			
Basics of human genetics (3rd sem.)	Lecture	2	2	Comp.	Multi-part exam part 2: Written tests for practical parts during semester (3-4; combined exam)		50%
	Practical*	1	1	Comp.			
mIsWritEng-01a		English scientific writing					
In which semester	Duration			Status	Admission requirements	Credit points/workload in hrs	
2nd + 3rd semester	2 semesters			Comp.		6/ 180	

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Component	Type of instruction	Contact hrs	CP	Status	Type of examination	Evaluation	Weight
English Scientific Writing: Introduction (2 <sup>nd</sup> sem.)	Seminar	1	1	Comp.	Essay writing as homework (combined exam)	passed	
	Tutorial	1	1	Comp.			
English Scientific Writing/Presentation Techniques: Advanced skills (3 <sup>rd</sup> sem.)	Seminar	2	2	Comp.			
	Tutorial	1	2	Comp.			
<b>mlsBioInfo-01a</b>	<b>Bioinformatics</b>						
<b>In which semester</b>	<b>Duration</b>			<b>Status</b>	<b>Admission requirements</b>	<b>Credit points/workload in hrs</b>	
2nd semester	1 semester			Comp.		5/ 150	
<b>Component</b>	<b>Type of instruction</b>	<b>Contact hrs</b>	<b>CP</b>	<b>Status</b>	<b>Type of examination</b>	<b>Evaluation</b>	<b>Weight</b>
Bioinformatics – basics and application	Lecture	2	2	Comp.	Written exam	graded	
	Tutorial	2	2	Comp.			
	Seminar	1	1	Comp.			
<b>mlsTechno-01a</b>	<b>New technologies in biomedical research</b>						
<b>In which semester</b>	<b>Duration</b>			<b>Status</b>	<b>Admission requirements</b>	<b>Credit points/workload [here: 1 CP = 25 h]</b>	
3rd semester	1 semester			Comp.		4/ 100	
<b>Component</b>	<b>Type of instruction</b>	<b>Contact hrs</b>	<b>CP</b>	<b>Status</b>	<b>Type of examination</b>	<b>Evaluation</b>	<b>Weight</b>
New technologies in biomedical research	Excursions/tutorial *	2 3	3	Comp.	Presentation	graded	
	Seminar*	1	1	Comp.			

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**Electives outside focus areas (choose one)**

<b>mlsImaging-01a</b>	<b>Imaging techniques in biomedicine and translational research approaches</b>						
<b>In which semester</b>	<b>Duration</b>			<b>Status</b>	<b>Admission requirements</b>	<b>Credit points/workload in hrs</b>	
2nd+3rd semester	2 semesters			Elec.-comp.		8/240	
<b>Component</b>	<b>Type of instruction</b>	<b>Contact hrs</b>	<b>CP</b>	<b>Status</b>	<b>Type of examination</b>	<b>Evaluation</b>	<b>Weight</b>
Medical imaging: Diagnostics (2nd Sem.)	Lecture	1	1	Comp.	Oral exam	graded	
	Seminar*	1	2	Comp.			
Medical imaging: Biomedical research (3rd Sem.)	Lecture	1	1	Comp.			
	Seminar*	2	2	Comp.			
Cardiovascular epidemiology <i>or</i> Regenerative medicine <i>or</i> Neurosciences <i>or</i> Barrier functions: Molecular interaction Epithelium – environment <i>or</i> Molecular diagnostics <i>or</i> Metabolomics (3rd sem.)	Lecture	1	1	Comp.			
Cardiovascular epidemiology <i>or</i> Regenerative medicine <i>or</i> Neurosciences <i>or</i> Barrier functions: Molecular interaction Epithelium – environment <i>or</i> Molecular diagnostics <i>or</i> Metabolomics (3rd sem.)	Lab seminar*	2	1	Comp.			

\* Classes with mandatory attendance

mIsDiseaseTrace-01a		Tracing disease through time and translational research approaches									
In which semester	Duration			Status	Admission requirements	Credit points/workload in hrs					
2nd+3rd semester	2 semesters			Elec.-comp.		8/240					
Component	Type of instruction	Contact hrs	CP	Status	Type of examination	Evaluation	Weight				
Tracing disease through time (2 <sup>nd</sup> sem.)	Lecture	2	2	Comp.	Oral exam	graded					
	Seminar*	1	1	Comp.							
Tracing disease through time (3 <sup>rd</sup> sem.)	Lecture	1	1	Comp.							
	Seminar*	2	2	Comp.							
Cardiovascular epidemiology <i>or</i> Regenerative medicine <i>or</i> Neurosciences <i>or</i> Barrier functions: Molecular interaction Epithelium – environment <i>or</i> Molecular diagnostics <i>or</i> Metabolomics (3rd sem.)	Lecture	1	1	Comp.							
Cardiovascular epidemiology <i>or</i> Regenerative medicine <i>or</i> Neurosciences <i>or</i> Barrier functions: Molecular interaction Epithelium – environment <i>or</i> Molecular diagnostics <i>or</i> Metabolomics (3rd sem.)	Lab seminar*	2	1	Comp.							
mIsMolOcular-01a		Inflammatory and degenerative diseases of the eye and Translational Research Approaches									
In which semester	Duration			Status				Admission requirements	Credit points/workload in hrs		
2nd+3rd semester	2 semesters			Elec.-comp.		8/240					
Component	Type of instruction	Contact hrs	CP	Status	Type of examination	Evaluation	Weight				
Inflammatory and degenerative diseases of the eye (2 <sup>nd</sup> sem.)	Lecture	2	2	Comp.	Oral exam	graded					
	Seminar*	1	1	Comp.							
Inflammatory and degenerative diseases of the eye (3 <sup>rd</sup> sem.)	Lecture	1	1	Comp.							
	Seminar*	2	2	Comp.							
Cardiovascular epidemiology <i>or</i> Regenerative medicine <i>or</i> Neurosciences <i>or</i> Barrier functions: Molecular interaction Epithelium – environment <i>or</i> Molecular diagnostics <i>or</i> Metabolomics (3rd sem.)	Lecture	1	1	Comp.							
Cardiovascular epidemiology <i>or</i> Regenerative medicine <i>or</i> Neurosciences <i>or</i> Barrier functions: Molecular interaction Epithelium – environment <i>or</i> Molecular diagnostics <i>or</i> Metabolomics (3rd sem.)	Lab seminar*	2	1	Comp.							

\* Classes with mandatory attendance

**Focus areas I (choose one)**

mIsInflammationI-01a		Focus area Inflammation I						
In which semester	Duration			Status	Admission requirements	Credit points/workload in hrs		
2nd semester	1 semester			Elec.-comp.	MolBio passed	5/ 150		
Component	Type of instruction	Contact hrs	CP	Status	Type of examination	Evaluation	Weight	
Introduction to clinical inflammation research	Lecture	2	1	Comp.	Written exam	graded		
	Seminar*	2	2	Comp.				
Practical disease research: Diagnostics	Practical exercise*	2	2	Comp.				
mIsPractInflammationI-01a		Research Practical Focus area Inflammation I						
In which semester	Duration			Status	Admission requirements	Credit points/workload in hrs		
2nd semester	1 semester			Elec.-comp.	MolBio passed	6/ 180		
Component	Type of instruction	Contact hrs	CP	Status	Type of examination	Evaluation	Weight	
Block practical research – Lab 1	Practical*	3	3	Comp.	Lab book	graded		
Block practical research – Lab 2	Practical*	3	3	Comp.				
mIsOncologyI-01a		Focus area Oncology I						
In which semester	Duration			Status	Admission requirements	Credit points/workload in hrs		
2nd semester	1 semester			Elec.-comp.	MolBio passed	5/ 150		
Component	Type of instruction	Contact hrs	CP	Status	Type of examination	Evaluation	Weight	
Malignant diseases in humans - introduction	Lecture	2	1	Comp.	Written exam	graded		
	Seminar*	2	2	Comp.				
Practical disease research: Diagnostics	Practical exercise*	2	2	Comp.				
mIsPractOncologyI-01a		Research Practical Focus area Oncology I						
In which semester	Duration			Status	Admission requirements	Credit points/workload in hrs		
2nd semester	1 semester			Elec.-comp.	MolBio passed	6/ 180		
Component	Type of instruction	Contact hrs	CP	Status	Type of examination	Evaluation	Weight	
Block practical research – Lab 1	Practical*	3	3	Comp.	Lab book	graded		
Block practical research – Lab 2	Practical*	3	3	Comp.				

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mIsEvoMedi-01a		Focus Area Evolutionary Medicine I						
In which semester	Duration			Status	Admission requirements	Credit points/workload		
2nd semester	1 semester			Elec.-comp.	MolBio passed	5/150 Stunden		
Component	Type of instruction	Contact hrs	CP	Status	Type of examination	Evaluation	Weight	
Evolutionary medicine - introduction	Lecture	2	1	Comp.	Written exam	graded		
	Seminar*	2	2	Comp.				
Practical disease research: Diagnostics	Practical exercise*	2	2	Comp.				
mIsPractEvoMedi-01a		Research Practical Focus Area Evolutionary Medicine I						
In which semester	Duration			Status	Admission requirements	Credit points/workload in hrs		
2nd semester	1 semester			Elec.-comp.	MolBio passed	6/ 180		
Component	Type of instruction	Contact hrs	CP	Status	Type of examination	Evaluation	Weight	
Block practical research – Lab 1	Practical	3	3	Comp.	Lab book	graded		
Block practical research – Lab 2	Practical	3	3	Comp.				

### Focus areas II (continuation of area chosen in 2nd semester)

mIsInflammationII-01a		Focus area Inflammation II						
In which semester	Duration			Status	Admission requirements	Credit points/workload in hrs		
3rd semester	1 semester			Elec.-comp.	Inflammation I passed	11/ 330		
Component	Type of instruction	Contact hrs	CP	Status	Type of examination	Evaluation	Weight	
Clinical inflammation research: Project development	Practical course*	9	8	Comp.	Scientific essay + oral presentation (oral presentation in front of progr. committee)	graded		
	Seminar*	1	2	Comp.				
Current affairs (joint seminar)	Seminar*	1	1	Comp.				
mIsOncologyII-01a		Focus area Malignant diseases II						
In which semester	Duration			Status	Admission requirements	Credit points/workload in hrs		
3rd semester	1 semester			Elec.-comp.	Oncology I passed	11/ 330		
Component	Type of instruction	Contact hrs	CP	Status	Type of examination	Evaluation	Weight	
Malignant diseases in humans: Project development	Practical course*	9	8	Comp.	Scientific essay + oral presentation (oral presentation in front of progr. committee)	graded		
	Seminar*	1	2	Comp.				
Current affairs (joint seminar)	Seminar*	1	1	Comp.				

\* Classes with mandatory attendance

mIsEvoMedII-01a		Focus area Evolutionary Medicine II					
In which semester	Duration			Status	Admission requirements	Credit points/workload in hrs	
3rd semester	1 semester			Elec.-comp.	Evolutionary Medicine I passed	11/ 330	
Component	Type of instruction	Contact hrs	CP	Status	Type of examination	Evaluation	Weight
Evolutionary medicine: Project development	Practical course*	9	8	Comp.	Scientific essay + oral presentation (oral presentation in front of progr. committee)	graded	
	Seminar*	1	2	Comp.			
Current affairs (joint seminar)	Seminar*	1	1	Comp.			

#### Master's thesis 4th semester (carried out in focus area chosen)

MIsMASTER-01a		Preparation of Master's thesis					
In which semester	Duration			Status	Admission requirements	Credit points/workload in hrs	
4th semester	1 semester			Comp.	Scientific essay Focus Area II passed, all other modules concluded, 79 ECTS	30/ 900	
Component	Type of instruction	Contact hrs	CP	Status	Type of examination	Evaluation	Weight
Master's thesis	Supervised research work	**	30	Comp.	Master's thesis	graded	

\*\* depends on individual project and need for supervisors' input; supervisors are available for individual advice or set appointments.