

Module Medicine

Module Name: Medicine

Module Number	Level	Master	Short Name	MED
Responsible Lecturers	Prof. Dr. rer. nat. Dagmar Willkomm Prof. Dr. med. Dipl.-Ing. (FH) Hans-Jürgen Grein			
Department, Facility	THL, Applied Natural Sciences			
Course of Studies	Biomedical Engineering, Master			
Compulsory/elective	Compulsory	ECTS Credit Points	8	
Semester of Studies	1	Semester Hours per Week	8	
Length (semesters)	1	Workload (hours)	240	
Frequency	WiSe	Presence Hours		
Teaching Language	English	Self-Study Hours		
Consideration of Gender and Diversity Issues	<input checked="" type="checkbox"/> Use of gender-neutral language (THL standard) <input type="checkbox"/> Target group specific adjustment of didactic methods <input type="checkbox"/> Making subject diversity visible (female researchers, cultures etc.)			
Applicability	Biomedical Engineering			
Remarks	None			

Module Medicine

Module Course

Course 1: Anatomy and Physiology

Course Number		Short Name	ANPHYS
Course Type	Lecture	Form of Learning	Presence
Mandatory Attendance	<input type="checkbox"/>	ECTS Credit Points	4
Participation Limit	None	Semester Hours per Week	4
Group Size (practical training, exercises, ...)	None	Workload (hours)	120
Teaching Language	English	Presence Hours	40
Study Achievements („Studienleistung“, SL)	Test	Self-Study Hours	80
SL Length (minutes)	90	SL Grading System	One-third grades
Exam Type	Written Exam	Exam Language	English
Exam Length (minutes)	90	Exam Grading System	One-third grades
Learning Outcomes	<p>The students shall acquire a basic understanding of all tissues and organs structures and functions. They should get to know the commonly used terms, the basic principles of medical thinking, diagnostics and therapy. They shall be able to relate to the single tissues and organs productivities and to under what circumstances these can be limited. In addition, they shall learn about the principles to support and replace damaged tissues and organs. The students also acquire knowledge of the physiological regulation of the most important functions within the human body as well as the application of current technical diagnostic and therapy methods in clinical medicine.</p>		
Participation Prerequisites	None		
Contents	<ul style="list-style-type: none"> • Basic knowledge in anatomy, cytology and histology • Overview on the main organ systems: Skeletal and muscle systems, respiratory tract, gastrointestinal tract, urogenital tract, central and peripheral nervous systems, blood and defense system • Examples are given concerning wide-spread diseases like infections, diabetes, malfunctions of heart, lungs and kidney and mechanical injuries: <ol style="list-style-type: none"> 1. The cardiovascular system <ol style="list-style-type: none"> a. Heart b. Circulation system 2. General neurophysiology and sensory system <ol style="list-style-type: none"> a. General neurophysiology b. Sensory system 		

Module Medicine

	<ol style="list-style-type: none">3. Brain function and regulation of hormonal feedback control systems<ol style="list-style-type: none">a. Brain functionb. Hormonal feedback control systems4. Motor system5. Respiration6. Kidneys7. Gastrointestinal tract and digestion8. Energy metabolism and nutrition
Literature	<ul style="list-style-type: none">• Waugh, A. Grant, „<i>Anatomy and Physiology in Health and Illness</i>“, Elsevier, 2018.• R. Drake, A. Wayne Vogl, A. Mitchell, „<i>Gray's Anatomy for students</i>“, Churchill Livingstone, 2009.
Remarks	None

Module Medicine

Module Course

Course 2: Microbiology and Hygiene

Course Number		Short Name	MIHY
Course Type		Form of Learning	Presence
Mandatory Attendance	<input checked="" type="checkbox"/>	ECTS Credit Points	4
Participation Limit	None	Semester Hours per Week	4
Group Size (practical training, exercises, ...)	25	Workload (hours)	120
Teaching Language	English	Presence Hours	40
Study Achievements („Studienleistung“, SL)		Self-Study Hours	80
SL Length (minutes)		SL Grading System	n. a.
Exam Type	Written Exam	Exam Language	English
Exam Length (minutes)	90	Exam Grading System	One-third Grades
Learning Outcomes	The students get acquainted with basic knowledge of microbiology and hygiene. A major focus is on medical microbiology and infections, which can occur when using medical technology products. In addition, students learn basics about sampling techniques, about the hygienically correct handling of potentially contaminated materials and about the avoidance of contamination by technical staff.		
Participation Prerequisites	None		
Contents	Basic knowledge of bacteriology, mycology, virology and immunology with an insight into diagnostics in medical microbiology and test systems used. A further focus is on transmission of disease, especially with regard to pathogens in hospitalized patients. In this context, also hygiene of air and water as well as methods of disinfection and sterilization are covered and experimentally explored.		
Literature	Goering et al., „Mims' Medical Microbiology“, 5th ed. Elsevier, 2012.		
Remarks	None		