



UNIVERSITÄT ZU LÜBECK



Course Guide Medicine

IM FOCUS DAS LEBEN

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The University of Lübeck

Research and teaching at the University of Lübeck started in the field of medicine, but our computer science, natural sciences, and engineering faculties today encompass much more. The common element among them is their emphasis on life sciences, also mirrored by our motto, *Im Focus das Leben* (Focus on Life).

We offer degree programmes in Medicine, Computer Science, Molecular Life Science, Computational Life Science, Medical Engineering Science, Infection Biology and Psychology. We initiated a master's programme in Biomedical Engineering in collaboration with the University of Applied Sciences of Lübeck.

Compared with other universities, the University of Lübeck is small, with just 3,400 students – but boasts a good teacher-student ratio. The high standings of our computer science and medicine students underscore the high standard of our teaching and education.

Concerning research in medicine the University of Lübeck places particular emphasis on the special research fields "Infection and inflammation", "Brain, Behavior and Metabolism" and "Biomedical Engineering".

Contacts

International Office

All information concerning the application process and enrolment can be found on our website: www.uni-luebeck.de/international

International Coordinator: Fiona Schnüttgen

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Coordinator for Medical Studies

All information concerning the curriculum can be found on our website: www.medizin.uni-luebeck.de

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Grading System

ECTS Credits

The credits are a numerical value allocated to course units to describe the students' workload required to complete them. In ECTS, 60 credits represent the average workload of an academic year of study and normally 30 credits for a semester. The credits of each course unit thus reflect the workload of the unit in relation to the total semester workload as a fraction of 30 and are a relative rather than an absolute measure of student workload. It has to be mentioned that there is no relationship between ECTS credits and the level or difficulty of a course unit. Credits are awarded only when the course has been completed and all required examinations have been successfully taken.

Two semester periods correspond to approximately 3 ECTS. Short time clinical electives (German Famulatur) with 40 hs per week amount to 2 ECTS weekly and the last year clinical elective (practical year) is credited with 20 ECTS per 16 weeks.

Transcript of Records

Home and host institutions prepare and exchange Transcripts of Records for each student participating in ECTS before and after the period of study abroad. Every course taken by the student is recorded on the transcript with not only the ECTS credits but also the grade awarded according to the local grading scale and, when available, the ECTS grading scale. A copy of transcripts is given to the student for his/her personal file. The home institution recognises the amount of credits received by their students from partner institutions abroad in respect of specific course units such that the credits for the course unit replace the credits which would otherwise have been obtained from the home institution.

Learning Agreement

The Learning Agreement contains the list of courses to be taken and agreed upon by the student and the responsible academic body of the institution concerned. In the case of credit transfer, the Learning Agreement has to be agreed upon by the student and the two institutions concerned before the student's departure and to be updated immediately when changes occur.

Grading Scheme Human Medicine

local grade	1.0 – 1.5	above 1.5 – 2.5	above 2.5 – 3.5	above 3.5 – 4.0	above 4.0
equivalent	very good	good	satisfactory	sufficient	fail
definition	outstanding performance	significant above average standard	average standard in all respects	fair but with significant shortcomings	insufficient in all respects

Medical Studies in Germany

Please note: this is a general overview given as an introductory description of Medical studies in Germany. You will find the courses offered for exchange students in the section 'Medical Studies in Luebeck'.

Medical studies in Germany are subdivided into:

- 1) The preclinical part with a minimum of 2 years of studies, and
- 2) the clinical part with a minimum of 4 years of studies including the Practical Year.

1) The **preclinical part** comprises the following compulsory subjects:

- Physics
- Chemistry
- Biology
- Physiology
- Biochemistry / Molecular Biology
- Macroscopic Anatomy
- Microscopic Anatomy
- Medical Psychology and Sociology
- Introduction to Clinical Medicine
- Introduction to Medical Professions
- Medical Terminology
- Elective subject
- First Aid

Practical training in a hospital or another medical facility (3 months)

2) The **clinical part** takes at least 8 semesters and is subdivided into

- a) The clinical-theoretical and the clinical-practical part (3 years) and
- b) the clinical Practical Year (1 year)

2a) The clinical-theoretical and clinical-practical part comprises the following compulsory courses:

- Anaesthesiology
- Block Practical General Medicine
- Block Practical Gynaecology and Obstetrics
- Block Practical Internal Medicine
- Block Practical Paediatrics
- Block Practical Surgery

- Clinical Chemistry, Laboratory Diagnostics
- Clinical Environmental Medicine
- Clinical Pathological Conference
- Clinical Pharmacology, Pharmacotherapy
- Dermatology, Venerology
- Elective Subject
- Emergency Medicine
- Epidemiology, Medical Biometrics und Medical Informatics
- Forensic Medicine
- General Medicine
- Geriatrics
- Gynaecology and Obstetrics
- Health Economics, Health System, Public Health Service
- History, Theory, Ethics of Medicine
- Human Genetics
- Hygiene, Microbiology, Virology
- Image Processing Methods, Radiotherapy, Radiation Protection
- Diagnosis and Therapy of Infectious Diseases
- Internal Medicine
- Neurology
- Occupational Medicine, Social Medicine
- Ophthalmology
- Orthopaedics
- Otorhinolaryngology
- Paediatrics
- Pain Medicine
- Palliative Medicine
- Pathology
- Pharmacology, Toxicology
- Preventive Health Care, Health Care Planning
- Psychiatry, Psychotherapy
- Psychosomataical Medicine and Psychotherapy
- Rehabilitation, Physical Medicine, Treatment by Natural Remedies
- Surgery
- Urology

Additionally each student spends four months of clinical electives.

2b) The Practical Year consists of 48 weeks of practical training on the wards of either the University Hospital and/or teaching hospitals divided into 16 weeks in Internal Medicine, 16 weeks in Surgery, 16 weeks in an elective subject. Admission is granted when all credits of the clinical theoretical and clinical practical part are passed.

Please note: For the practical year (or parts of it) an application via the International Office is obligatory.

State Examinations

Medical students in Germany have to pass one preclinical state examination and one clinical state examination (both written and oral):

The first examination will be taken after 4 semesters of preclinical studies. The written part of the second examination will be before entering the practical year and the oral part after.

Medical Studies in Lübeck

The Medical studies in Lübeck are science-based and interdisciplinary, thus preparing students for examination and practical work, while the curriculum offers ideal opportunities for research, studying abroad or social commitment.

The clinical part is structured as follows from the table.

Please note that courses from different years can only be taken when courses are not overlapping and after consultation with the International Office. Furthermore, consultation is necessary if only one term/part of cumulative or two-part courses will be taken.

There is no possibility to choose only parts of single courses or single exams.

Please be aware that you will be required to attend courses for complete semesters in order to achieve the ECTS credits awarded. We request that you contact us well in advance if your needs differ from this requirement. The lecture periods are generally as follows:

Winter semester from about 01.10. to 28.02. and

Summer semester from about 01.04. to 31.07.

Any German language courses offered will take place in the 3 weeks prior to the beginning of the semester.

Clinical Studies in Human Medicine for exchange students

Third year (=first year of Clinical Studies)	Offered in
Clinical Environmental Medicine	winter only
Emergency Medicine	summer and winter
History, Theory and Ethics of Medicine	summer and winter
Hygiene, Microbiology, Virology	summer and winter
Human Genetics	summer only
Interdisciplinary Medical Examination Training (cumulative grade): Internal Medicine, Surgery Gynaecology and Obstetrics, Paediatrics	Internal Medicine and Surgery in winter, the other subjects in summer
Interdisciplinary (cumulative grade): Clinical Chemistry, Laboratory Diagnostics Pathology (2 parts) Pharmacology, Toxicology (2 parts)	Clinical Chemistry in summer, the rest part I in winter, part II in summer
Fourth Year (=second year of Clinical Studies)	Offered in
Anaesthesiology	summer and winter
Block Practical Gynaecology and Obstetrics	summer and winter
Block Practical Internal Medicine (additionally 2-part lecture, part I in winter, part II in summer)	summer and winter
Block Practical Paediatrics (additionally 2-part lecture, part I in winter, part II in summer)	summer and winter
Block Practical Surgery (additionally 2-part lecture, part I in winter, part II in summer)	summer and winter
Clinical-Pathological Conference (2 parts)	part I in winter, part II in summer
Clinical Pharmacology / Pharmacotherapy (2 parts)	part I in winter, part II in summer
Forensic Medicine (additionally 2-part lecture)	summer and winter
Occupational Medicine, Social Medicine Including: Health Economics, Health System, Public Health Service/ Rehabilitation, Physical Medicine, Treatment by Natural Remedies, (Epidemiology)	summer and winter
Fifth Year (=third year of Clinical Studies)	Offered in
Block Practical General Medicine (only in combination with seminar)	summer and winter
Dermatology, Venerology	summer and winter
Epidemiology, Medical Biometrics, Medical Computer Science	summer and winter
General Medicine (lecture and seminar)	summer and winter
Geriatrics	summer and winter
Diagnosis and therapy of infectious diseases	summer and winter
Ophthalmology	summer and winter
Orthopaedics	summer and winter
Otorhinolaryngology	summer and winter
Interdisciplinary (cumulative grade): Neurology (additionally 2-part lecture) Psychiatry and Psychotherapy (only in combination with) Psychosomatics and Psychotherapy (see Psychiatry)	summer and winter
Urology	summer and winter

1st year of clinical studies

- Clinical Environmental Medicine
- Emergency Medicine
- History, Theory and Ethics of Medicine
- Hygiene, Microbiology, Virology
- Human Genetics
- Interdisciplinary Medical Examination Training (Internal Medicine, Gynaecology and Obstetrics, Paediatrics, Surgery)
- Clinical Chemistry, Laboratory Diagnostics
- Pathology
- Pharmacology/Toxicology

Clinical Environmental Medicine “Problem-Based Learning”

Aims and contents:

Clinical environmental medicine is an interdisciplinary field that deals with the research, detection, treatment and prevention of environmental and environmentally-associated health disorders. Anthropogenic environmental pollution and its detrimental effects on human health are taught as a central subject area.

In this course, students should learn and understand that environmental factors must be taken into account in causal considerations of diseases, that there are diseases in many specialist areas that are associated with environmental influences and that their medical actions must be evidence-based and self-critical in terms of differential diagnosis. A further aim of this course is to develop independence in the acquisition, evaluation and presentation of scientific information.

Anthropogenic environmental pollution and its detrimental effects on human health are concrete examples of this. Learning objectives are therefore primarily of a methodological nature and less fixed in terms of content.

Lecture: Included in the practical course

Course/practical: 2 weeks daily at the beginning of the term, winter term only

Type of exam: The performance assessment takes the form of a presentation examination. For the examination, students prepare a poster and an abstract on an environmental medicine issue. Poster and abstract are defended in front of a jury. The overall grade is made up of 4 sub-grades (1. title, content and method of poster and abstract, 2. poster (implementation, design, visualization); 3. abstract (line of argumentation, language line formulations, evaluating, scientific reference) and 4. talk and presentation at the poster session.

3 ECTS

Emergency Medicine

Aims and contents:

The course deals with diagnostic and therapeutic measures in emergency medicine. The students can:

- pay attention to the safety of an emergency site and effectively protect themselves in an emergency situation
- make an emergency call outside and inside the hospital
- recognize a cardiac arrest and perform basic resuscitation measures on a phantom
- perform basic measures on unconscious persons with preserved breathing (including lateral position)
- explain the basics of basic and advanced resuscitation measures
- demonstrate the structured approach to a patient in an emergency and explain the basics (ABCDE scheme)
- explain the basic features of diagnostics and advanced resuscitation measures, in particular the resuscitation algorithm
- perform proper defibrillation with a previously practiced defibrillator
- name signs of respiratory insufficiency
- Name reasons for a potentially difficult airway
- Explain the basics of airway management
- demonstrate the preparation of an airway by means of supraglottic airway or intubation and demonstrate assistance in securing the airway
- name substance groups for the induction of anesthesia in an emergency
- name typical emergency drugs (indication, contraindication...)
- describe the special features of pediatric emergencies
- demonstrate the structured approach to pediatric emergencies
- perform pediatric basic life support measures
- demonstrate a structured approach to critical trauma patients (cABCDE), including simple immobilization techniques
- explain the basics of wound care and fracture signs
- demonstrate a secondary survey on trauma patients
- Explain the basics of trauma care
- Explain diagnostics, therapy and the typical treatment pathways of common internal medicine emergencies
- explain the diagnosis, therapy and typical treatment pathways of common neurological emergencies
- Explain the diagnosis, therapy and typical treatment pathways of common neurosurgical emergencies with special consideration of the different types of intracranial hemorrhage
- Explain the diagnosis, therapy and typical treatment pathways of common surgical emergencies
- Explain the diagnosis and treatment of selected gynecological and obstetric emergencies
- Explain the diagnosis and treatment of selected pediatric surgical emergencies
- Name criteria for sepsis and explain the diagnosis and treatment of sepsis
- Explain forms of shock
- Describe the main features of the diagnosis and treatment of thermal emergencies
- Describe the main features of the diagnosis and treatment of intoxications

- Describe the main features of diagnosis and treatment of drowning and diving accidents
- demonstrate appropriate communication in an emergency situation
- demonstrate a structured patient handover
- explain the organization of emergency care in Germany

Lecture: 1h per week

Clinical training: 2hs per week in winter or summer

Type of exam: Final test with multiple choice and text questions at the end of the term and OSCE (objective standardized clinical examination)

Required equipment: None

5 ECTS

History, Theory, Ethics of Medicine

Aims and contents:

The course covers key stages in the development of medicine into modern biomedicine, paradigms of medical theory, central problems of medical ethics in their individual and social layers of meaning, reflection on one's own thoughts and actions as an integral part of medical activity.

Students are able to place their own approach and the current practice of medicine in historical, cultural and ethical contexts and reflect critically on them. They learn to recognize conflicts of values and layers of meaning in medical practice and to analyze them in a solution-oriented manner.

Lecture: 2 h per week

Course/practical: 2 hs per week or weekend seminar, in winter or summer

Type of exam: Preparation and leading of a lecture discussion as well as a presentation in the seminar, both with a short written elaboration in teams.

Required equipment: None

5 ECTS

Hygiene, Microbiology, Virology

Aims and contents:

The lecture deals with general and special bacteriology, virology, parasitology and mycology as well as the basics of immunology and hospital hygiene with the following topics:

- Fundamentals of bacteriology and immunology
- Classification of bacteria, microbiome
- Basics of preanalytics and antibiotic therapy
- Special bacteriology divided into infectious diseases
- Fundamentals of mycology and fungal infections
- Fundamentals of parasitology; special parasitology with a focus on malaria
- Fundamentals of virology
- Special virology
- Hospital hygiene: nosocomial infections, outbreak management

In the practical course, students will become familiar with bacteria, viruses, fungi and parasites and learn basic microbiological techniques including cultural, serological and molecular biological methods. The course also covers the microbiological diagnosis of important infectious diseases and the basics of antibiotic testing and therapy as well as measures for primary and secondary prevention. In the immunology section, the focus is on the explanation of examination techniques for determining humoral and cellular immune reactions.

The students have/are able to

- basic knowledge of microbiological diagnostics (methods, pre-analysis)
- Knowledge of the structure, function and pathogenesis of the most important human pathogenic pathogens and defence reactions
- Knowledge of the aetiology, diagnosis, therapy and prevention of infectious diseases
- Knowledge of important hospital hygiene problems and measures
- Explain the diagnosis of infectious diseases including the targeted request of laboratory laboratory findings
- order targeted diagnostics and assess their results and implement them for the benefit of the patient
- perform a cultural identification of an infectious agent and categorise the findings (differential diagnostic considerations, therapeutic concepts)
- interpret and classify complex serological and molecular biological findings

Lectures: 4 hs per week

Course/practical: 4 hs per week in winter or summer

Type of exam: Oral test at the end of the semester

Required equipment: Please bring a lab coat

11 ECTS

Human Genetics

Aims and contents:

Students have the opportunity to get inside into the whole spectrum of human genetics and the most important diseases which are topics of this teaching unit. Lectures cover for example subjects like genetic testing, risk calculation of hereditary diseases, genetic counselling and the prenatal diagnosis.

Lectures: 2 hs per week, summer term only

Course/practical: None

Type of exam: Written test at the end of the semester with multiple choice and text questions.

Required equipment: None

3 ECTS

Interdisciplinary Medical Examination Training

Aims and contents:

The course teaches basic clinical-practical skills and communication skills and prepares students for their first clinical traineeship and the clinical block placements. After the course, students will be able to apply conversation techniques, examination skills and practical skills appropriately, hygienically and in a respectful manner for patients.

The students can:

- Perform an internal medicine examination
- Perform an internal surgical examination
- Perform an examination of the musculoskeletal system
- Perform a neurological examination
- Demonstrate an examination of a newborn, infant and schoolchild
- Demonstrate a gynaecological screening examination
- Resolve a challenging doctor-patient communication situation
- Demonstrate basic skills on a model

The following main subjects are integrated in the course (cumulative grade); additionally partial rotation in different clinical subjects:

Winter term: **Internal Medicine / Surgery**

Lectures: 2 hs per week

Clinical training: 4 hs per week

Summer term: **Gynaecology and Obstetrics / Paediatrics**

Lectures: 2 hs per week, additionally 2hs paediatrics

Clinical training: 2 hs per week

Required equipment: Please bring your own gown, stethoscope, FFP-2 mask (if applicable) and any other examination utensils with you

Type of exam: OSCE (objective standardized clinical examination)

18 ECTS

Clinical Chemistry, Laboratory Diagnostics

Aims and contents:

The course provides knowledge in dealing with laboratory requirements and the evaluation of laboratory findings as well as the basics of clinical chemistry and hematology. Students acquire basic knowledge of anatomy, physiology and biochemistry. After the course, they should be able to make appropriate laboratory requests and interpret laboratory findings clinically and be able to apply the acquired knowledge in all clinical disciplines.

Lecture: 2 hs per week, summer term only

Course/practical: 2 hs per week, summer term only

Type of exam: Final test with multiple choice

Required equipment: Lab coat

5 ECTS

Pathology

Aims and contents:

The aim of the course is to teach students the basics of general pathology. After the course, they should be able to recognize the most important pathophysiological relationships and understand the general phenomena of disease mechanisms. Students should learn the basics of pathology and pathophysiological relationships. The combination of lecture, microscopy and macroscopy should make it easier to transfer the lecture material to morphology and also convey an idea of the correlation between macroscopy and microscopy. After the histology course, students should be able to independently prepare and examine histological specimens under the microscope. After the course, they should be able to recognize the most important pathophysiological relationships and correlate the clinical picture with the pathomorphology. They should be able to develop and present complex topics and argue for them in a discussion.

Lecture and course in general pathology winter term:

Course day 1: Introduction to the institute, organizational matters

Course day 2: Cell and tissue reactions, adaptation reactions

Course day 3: Necroses

Course day 4: Inflammation pathology I

Course day 5: Inflammatory pathology II

Lecture and course in general pathology summer term:

Immunopathology, tumor pathology, circulatory pathology

The lecture runs thematically parallel to the histology course.

Lecture: 2 hs lecture per week for two terms (winter and summer)

Course/practical: 2 h course every other week for two terms (winter and summer)

Type of exam: Final test at the end of the semester with multiple choice and text questions. A test must be written at the end of each semester.

Required equipment:

7 ECTS

Pharmacology, Toxicology

Aims and contents:

The course imparts knowledge of general pharmacology and toxicology.

The knowledge acquired in the lecture and seminar should enable students to assess the respective classes of drugs with regard to functional and therapeutic aspects. The focus is on the type of effect they have on the respective body functions and the resulting therapeutic applications. The knowledge and skills acquired by students in the lecture and seminar on general pharmacology and toxicology form the basis for an understanding of clinical pharmacology. Knowledge of the effects of drugs enables students to understand, assess and apply different therapeutic approaches and concepts.

At the end of the course, students will know

- the aspects of pharmacology that are independent of the specific drug (e.g. absorption, distribution and excretion, ideas about the molecular mechanisms of action, etc.).
- the most important drug groups with their respective mechanisms of action, desired and undesired effects and interactions and
- selected areas of toxicology (e.g. drug toxicology, toxicology of pesticides, accidental toxicology, etc.), general measures in cases of poisoning and specific poisonings (e.g. with acids, alkalis, surfactants, solvents, respiratory toxins, methemoglobin formers, alkaloids, poisonous fungi, insecticides).

Lectures: 2 hs per week for two terms (winter and summer)

Course/practical: 4 hs every other week for two terms (winter and summer)

Required equipment: None

Type of exam: Written test at the end of each semester with multiple choice questions.

9 ECTS

2nd year of clinical studies

- Anaesthesiology
- Block Practical Gynaecology and Obstetrics
- Block Practical Internal Medicine
- Block Practical Paediatrics
- Block Practical Surgery
- Clinical-Pathological Conference
- Clinical Pharmacology / Pharmacotherapy
- Forensic Medicine
- Social Medicine

Including: Occupational Medicine/Social Medicine, Health Economics, Health System, Public Health Service/Rehabilitation, Physical Medicine, Treatment by Natural Remedies

Anaesthesiology

Aims and contents:

The course provides an introduction to the subject of anesthesiology, medical practice in the field of anesthesia and emergency medicine.

The students have:

- Knowledge of the role and tasks of anesthesiology
- An understanding of the anesthesia process, including premedication and postoperative care
- Knowledge of the functions of medical devices (anesthesia ventilator, monitoring devices)
- Basic knowledge of intensive care medicine, palliative care, and perioperative stress management

You will acquire skills in the following areas:

- Professional behavior in the operating room
- Basic measures for the care of patients in anesthesiology and intensive care medicine
- Applying basic monitoring
- Basics: Creating peripheral venous vascular accesses
- Basics and learning in simulation: Creating arterial and central venous vascular accesses
- Operation of anesthesia equipment
- Techniques of anesthetic ventilation
- Techniques for securing the airway
- Performing anesthesia induction on a full-scale simulator with focus on Crew resource management

Lecture: 1h per week

Clinical training: 2 weeks full time course in winter or summer

Type of exam: OSCE and written exam at the end of each two-week internship

Required equipment: None (Students spend the time in the operating theatre and in seminars), students can bring their own stethoscope

5 ECTS

Block Practical Gynaecology and Obstetrics

Aims and contents:

The course covers the following topics:

- Benign gynecological diseases (development, symptoms, diagnostics, therapy)
- Female cycle, cycle disorders, contraception
- Malignant gynecological diseases (development, symptoms, diagnosis, therapy)
- Risk factors for the development of gynecological oncological malignancies and prevention
- Gynecological infectious diseases (STIs) (symptoms, diagnosis, treatment)
- Regular pregnancy
- Pathologies in pregnancy (incl. premature birth)
- Pregnancy care, maternity pass
- Normal birth
- Pathological birth incl. caesarean section
- Emergencies during pregnancy and birth

The students can:

- explain the diagnosis and treatment of gynecological and gynecological oncological diseases
- explain the development of diseases
- describe normal pregnancy and birth
- describe pathological pregnancy and birth
- describe emergencies in pregnancy and obstetrics
- perform a gynecological examination

Lecture: 2 hs per week for 2 terms (winter and summer)

Clinical training: 1 week course in winter or summer, week-end included

Type of exam: Short initial test at the beginning of the course and a written test at the end of the semester with multiple choice and text questions

Required equipment: Students should use a doctor's coat and stethoscope in order to examine the patients appropriately

7 ECTS

Block Practical Internal Medicine

Aims and contents:

In the course, students learn about internal diagnostics and the clinical and instrumental examination methods (air sampling, bronchoscopy, BGA, ECG, stress ECG, cardiac catheterization, sonography, endoscopy, electrolyte disorders, dialysis therapy, catheter installation, accesses. ECG, cardiac catheterization, sonography, endoscopy, electrolyte disorders, dialysis therapy, catheter installation, accesses). Practical medical skills are learned using models in peer teaching. In the ward placement, students gain further practical experience in basic internal medicine diagnostics and therapy strategies in the individual internal medicine disciplines. Practical integration into the ward routine takes place with individual supervision during admission, examination, diagnostic and treatment planning of a patient, risk assessment, presentation during ward rounds and case documentation.

Students learn about various challenging problem areas of medical communication in the context of different teaching/learning settings and deepen these in practice (including role plays with video technology and feedback in the communication lab). The focus is on delivering infaust diagnoses in palliative situations, accompanying discussions with relatives and dealing with death and dying. Competence to act: Students can deliver serious diagnoses or death notifications to patients or relatives independently and without assistance and react/de-escalate/communicate appropriately. Students recognize and verbalize challenges against the background of individual previous experiences.

The students can:

- Classify the most common internal diseases
- Perform and interpret an internal medical history and physical examination
- Perform puncture and infusion techniques
- Describe further diagnostics and therapeutic approaches
- Develop a methodology for analyzing cases and forming a working hypothesis based on the findings, laboratory and examination results
- Create examination and therapy plans
- Write a case description in the form of an epicrisis
- Communicate findings and further procedure within the medical team, interprofessionally and with patients and relatives.

Lecture: 4 lectures (à 1h) per week for two terms (winter and summer)

Clinical training: 3 weeks full time course in winter or summer term. In addition the skills lab is offering guided education at 10 basic working places (voluntary training 8 hrs/week)

Type of exam: 4 written exams (January and February for winter term; May/June and July for summer term).

Required equipment:

The lectures and the training are in German only. The attending students should be fluent in the language. Appropriate white coats and stethoscopes are required for the training.

13 ECTS

Block Practical Paediatrics

Aims and contents:

The course covers all important areas of pediatrics: development, nutrition, infectious diseases, prematurity, child-family-society. Focus areas: Neonatology, endocrinology, oncology/hematology, social pediatrics, psychosomatics, neuropsychiatry, genetics, intensive care medicine. Resource-oriented cooperation between practice and clinic.

The students know:

- the special features of pediatrics compared to adult medicine. diagnosis, differential diagnosis, therapy and prophylaxis of the most important pediatric clinical pictures
- the rational diagnosis and treatment of pediatric clinical pictures on the basis of evidence-based medicine
- the importance of anamnesis, clinical examination and diagnostics for the treatment of the most important pediatric diseases in different age groups

The students can:

- take a medical history and demonstrate clinical-practical examination techniques in children of different age groups (newborns, infants, young children and schoolchildren)
- conduct consultations with parents and children
- demonstrate rational and efficient use of examination methods in pediatrics
- interpret typical examination findings

Lecture: 2 hs lecture per week for two terms (winter and summer)

Clinical training: 2 weeks full time course in winter or summer

Type of exam: Oral entrance exam for orientation on the 1st day of the practical, oral final exam at the end of the 2nd week. Pediatric examination on 5 different pediatric wards, daily seminars with presentations, case presentations, practical exercises.

Required equipment: Students should use stethoscopes and white coats in order to examine the patients appropriately

9 ECTS

Block Practical Surgery

Aims and contents:

Students are learning the whole field of basic and specific surgery. The focus is on working on and with patients on the wards. During the course, which is held on wards in different surgical departments, students become familiar with specific diseases via bedside teaching.

The main lecture covers general and abdominal surgery, vascular surgery, transplantation surgery, trauma and plastic surgery, pediatric surgery, neurosurgery, oral and maxillofacial surgery and cardiac surgery.

Students have knowledge of the most important surgical clinical pictures, examination methods, preparation of diagnosis and therapy plans, differential diagnosis and therapy, surgical methods, pre- and post-operative care of patients. They can take a surgical history and prepare case reports as well as demonstrate surgical examination techniques and perform dressing changes, wound care and blood sampling.

Lecture: 3 lectures (à 1 h) per week for two terms (winter and summer)

Clinical training: 2 weeks full time course in winter or summer

Type of exam: Submission of 3 case reports and case-related oral final exam, 2 written exams (one at the end of each term)

Required equipment: Students should use white coats and stethoscopes in order to examine the patients appropriately.

11 ECTS

Clinical Pathological Conference

Aims and contents:

The course takes the form of an interdisciplinary conference. Special emphasis will be placed on dialog and discussion of the cases. This should make it easier for students to interpret pathomorphological findings in conjunction with the overall clinical situation.

The aim of the course is to work with the students on selected clinical pictures from the perspective of the pathologist and the clinician. Students should become familiar with the possibilities and limitations of pathomorphological diagnostics. They should recognize the essential pathological findings of the individual entities and be able to interpret morphological findings in conjunction with the clinical situation. After the course, students should be able to correlate clinical and pathological findings and combine them into an overall finding. Students should be able to summarize and critically comment on the results of a clinical-pathological conference.

At the end of the course, students should be able to present their findings and defend them in a plenary session.

Lecture: 2 hs per week for two terms (winter and summer)

Course/practical: The course is included in the main lecture, in order to show students diseases which can respond to the preceding treatment.

Type of exam: Written test with multiple choice and text questions about the learning matter of one semester. A test must be written at the end of each semester.

Required equipment: None

5 ECTS

Clinical Pharmacology, Pharmacotherapy

Aims and contents:

The subject "Clinical Pharmacology, Pharmacotherapy" teaches the pharmacotherapy of medically relevant clinical pictures through a collegial, interdisciplinary expert discussion.

The students

- have understood the content of special pharmacology, differential therapy and pharmacotherapy for medically relevant clinical pictures,
- are able to assess and apply the various therapeutic approaches and concepts and, if necessary, initiate adequate pharmacotherapy in line with guidelines and
- are able to professionally assess and optimize a pharmacotherapy despite changes in the concepts for the treatment of diseases.

Lecture: 2 hs per week for two terms (winter and summer)

Course/practical: Included in the main lecture

Type of exam: Written test at the end of each semester with multiple choice questions. The prerequisite for admission to the partial exams is a one-time attendance of a lecture in presence.

Required equipment: None

5 ECTS

Forensic Medicine

Aims and contents:

The course covers the topics of post-mortem examination, death certificate, wound morphology, psychopathology, medical law and ethics, alcoholology, toxicology, preparation of a POL case; optional autopsy and/or court hearing.

The students can:

- carry out a post-mortem examination
- correctly complete the death certificate
- describe injuries systematically and justifiably, recognize victims of violence and suggest offers of help
- recognize and solve legal and ethical problems
- recognize the influence of alcohol and drugs and take appropriate measures or adapt medical treatment
- understand the procedure and results of a coroner's inquest according to the Code of Criminal Procedure and recognize the findings
- understand the structure and procedure of a court hearing with special consideration of witness statements by medical personnel

Lecture: 1 h per week for two terms (winter and summer)

Clinical training: 1 week full time course in winter or summer

Type of exam: Short initial test at the beginning of the course and discussion after the end of the block internship. Written processing of a POL case with presentation. Written test at the end of the semester with multiple choice and text questions.

Required equipment: None

7 ECTS

Social Medicine

(including Epidemiology; Occupational medicine and social medicine; Health economics, health system, public health service; Rehabilitation, physical medicine, treatment by natural remedies)

Aims and contents:

Contents:

- scientifically based decision-making in: Diagnostics, prognostics, therapy
- methods of clinical epidemiology and evidence-based medicine
- social medicine/occupational medicine; German health system and health economics
- framework conditions for health care: Service providers, payers, public health service, rehabilitation and naturopathic treatments
- exchange and discussion with experts in the healthcare system from different areas

The students

- acquire knowledge of the theory and methodology of the five steps of evidence-based medicine (EbM)
- acquire knowledge of the health-related reference systems, e.g. organizational, institutional, political-social, and economic contexts
- learn targeted information research, presentation and communication skills
- acquire skills to assess and compare the effectiveness, as well as evaluate the benefits and harms of medical procedures
- are able to critically evaluate current health policy projects and initiatives
- are able to apply the acquired skills to achieve scientifically grounded decision-making in healthcare provision
- are able to apply their skills to form judgments in matter of social law and health policy

Lecture: included in the course

Course/practical: 2 weeks full time course in winter or summer

Type of exam: E-Test

Required equipment: None

5 ECTS

3rd year of clinical studies

- Block Practical General Medicine (only in combination with lecture and seminar)
- Dermatology, Venerology
- Epidemiology, Medical Biometrics, Medical Computer Science
- General Medicine (lecture and seminar)
- Geriatrics
- Infectious diseases and Immunology
- Ophthalmology
- Orthopaedics
- Otorhinolaryngology
- Neurology
- Psychiatry and Psychotherapy
- Psychosomatics and Psychotherapy
- Urology

Block Practical General Medicine / General Medicine

(Block Practical only in combination with seminar 'Family Medicine' and only in the end of the term/in the second term after consultation with the Institute of Family Medicine).

Aims and contents:

The students can (Block Practical):

- independently take a medical history
- independently carry out a clinical examination for back pain
- independently carry out a clinical examination for cough
- independently carry out a clinical examination for abdominal pain
- demonstrate an otoscopy
- interpret an ECG
- interpret a 24h blood pressure measurement
- independently carry out a vaccination
- name principles of wound treatment (acute/chronic)
- present a case and make suggestions for the procedure
- describe economic aspects of practice management

The students can (seminar)

- justify the choice of examination form (OSCE) against the background of the Miller pyramid
- describe the procedure of the general practice OSCE
- reproduce the definitions of "avoidable dangerous course", "experienced medical history" and "keeping an open mind"
- give examples of the holistic approach in general medical practice
- list advantages and disadvantages of continuity of care
- explain the coordination function of a general practitioner using examples
- give advice on a test result against the background of the prevalence area
- explain the terms "positive predictive value" and "negative predictive value" using a concrete example
- define the term guideline and list sources of good guidelines
- explain the term "degree of recommendation"
- carry out a clinical examination for non-specific low back pain
- define different types of home visits
- name the relevant laws in connection with home visits
- list items/materials that belong in a home visit bag
- list the advantages and disadvantages of an interaction check using a practice information system
- use instruments to check medication
- list elements of salutogenesis
- list differences between vaccination complications and vaccination reactions
- list examples of contraindications or non-contraindications that speak against vaccination
- name advantages and disadvantages of early detection measures
- define the terms eHealth, synchronous and asynchronous telemedicine
- give examples of the implementation science approach in the field of eHealth
- reproduce recommendations for the implementation of telephone calls
- explain the principle of economic efficiency
- name the guidelines and different consultation hour concepts with the respective advantages

- and disadvantages
- describe the legal basis for delegation and delegation options
- name the advantages and disadvantages of different forms of branch practices
- name the difference between a subjective and an objective emergency
- describe the frequency and spectrum of objective emergencies in GP practices
- design algorithms for dealing with frequent emergencies in the GP practice, taking into account established procedures in the team

Lecture/Seminar: 2 hs per week

Clinical training: Two-week internship (block practical) in a teaching practice in winter or summer

Type of exam: Objective Structured Clinical Examination (OSCE) with integrated formative feedback at the end of the semester; structured feedback from the teaching doctor as part of the block internship

Required equipment: Students should contact their teaching doctor (Block Practical) in advance in order to ask what equipment is needed

ECTS: 5 ECTS

Dermatology, Venerology

Aims and contents:

Students are introduced to the whole field of dermatology and venerology, for example:

- Anatomy and physiology of skin and mucous membranes close to the skin,
- Skin infections
- Important infectious diseases caused by staphylococci, streptococci, herpes viruses, dermatophytes, yeasts
- Tumors (melanoma, basal cell carcinoma, spinocellular carcinoma)
- Allergy types (I-IV according to Coombs and Gell), hay fever, atopic eczema, allergic contact dermatitis, urticaria
- Autoimmune diseases of the skin (lupus erythematosus, scleroderma, pemphigus, pemphigoid)
- Psoriasis/neurodermatitis

The students can:

- carry out a dermatologically targeted physical examination
- take a dermatologically targeted medical history
- carry out a differential diagnosis
- Understand and explain the basics of pathophysiology
- Describe indications for examination and therapy methods.

Lecture: 3 hs per week

Clinical training: 5 hs per week for 5 consecutive weeks in winter or summer

Type of exam: final multiple choice test at the end of the semester

Required equipment: Doctor's coat

5 ECTS

Epidemiology, Medical Biometrics, Medical Computer Science

Aims and contents:

This course is taught in the 4th (Epidemiology; see Social Medicine) and 5th year of clinical studies (Biometrics and Computer Science) and can thus only be taken if no overlappings arise. Students learn to understand, evaluate and describe statistical analysis and outcomes. They are introduced to the basics of medical computer science as well as to the use of relevant software.

Topics Medical Biometrics:

- Descriptive statistical methods for the description of data
- Probability theory: methodology for diagnostic studies
- Introduction to statistical testing
- important test procedures for clinical-therapeutic studies
- Correlation and regression: methods for prognostic studies
- calculation tasks on descriptive statistics, probability calculation and statistical testing
- Use of Jamovi for methods of descriptive statistics and statistical testing

Topics Medical Computer Science:

- Basics of computer science, databases
- Medical documentation, hospital information systems
- Coding of diagnoses and procedures, DRG case classification system
- Medical image processing, AI in medical image analysis
- Telemedicine and health telematics

Lecture:

Epidemiology: lecture integrated in the course/practical social medicine

Biometrics: lecture integrated in the course/practical

Medical Computer Science: 2 hs per week with practical training

Course/practical: see above, in winter or summer

Type of exam:

Epidemiology: integrated in the course 'social medicine'

Biometrics: Course-related assignment plus final test

Medical Computer Science: written test at the end of term

Required equipment: none

7 ECTS

Geriatrics- “Problem-Based Learning”

Aims and contents:

Topics:

- Geriatric assessment
- Pharmacology in old age
- Care/levels of care
- Communication disorders in old age
- Dementia, delirium, cognitive impairments
- Mobility in old age

The students can:

- carry out a geriatric assessment
- name the risks of polypharmacy and apply strategies to minimize risks
- list the basic principles of long-term care insurance and use a care degree calculator to determine the expected classification
- discuss causes and consequences of communication disorders in old age and their implications for care
- list predisposing and precipitating factors for the development of delirium and name prevention strategies
- understand mobility restrictions in old age through self-experience and thus develop an understanding of the needs/requirements of people with restricted mobility

Lecture: 2 days part-time course (Friday, Saturday) in winter or summer

Clinical training: Included in the lecture, excursion and workshop

Type of exam: Written test at the end of the course.

Required equipment: None

2 ECTS

Infectious Diseases and Immunology

Aims and contents:

The course deals with diagnostics, differential diagnostics and therapy of infectious diseases as well as diseases in congenital and acquired disorders of the immune system.

Subject areas:

- Rational antibiotic therapy
- Pneumonia and pneumological infections
- Infectious emergencies / nosocomial infections / sepsis
- Infections of the CNS
- Infections of the newborn
- Infections in immunocompromised patients
- Inflammatory medicine
- Gastrointestinal infections
- Introduction to immunology
- Sexually transmitted infections including HIV

The students can:

- practise diagnostic algorithms
- use instrument-based and laboratory-based diagnostics sensibly
- evaluate and manage the above clinical pictures
- develop diagnostic and therapeutic pathways (exclusion principle) in a targeted manner
- research medical information
- explain resource management (equipment, laboratory, medication)

Lecture: 2 hs per week

Course/practical: Seminar included in the lecture, in winter or summer

Type of exam: Written examination at the end of the seminars

2 ECTS

Ophthalmology

Aims and Contents:

The aim of the ophthalmology course is to introduce students to the most important ophthalmological clinical pictures. These include both the common isolated eye-specific diseases such as cataract, glaucoma, amotio retinae etc., as well as eye conditions associated with general diseases such as diabetic retinopathy, vascular occlusive diseases and rheumatologic diseases. Characteristic symptoms are presented using patient examples. Diagnostic procedures are evaluated together with the students and therapy concepts are developed.

Entry level: Basic knowledge of physical optics and the anatomy of the eye is essential. Advanced knowledge of physiology and special pharmacology is helpful.

At the end of the course the students:

- have systematic knowledge of the most important eye diseases
- can assess the need for treatment and know emergency interventions and how to handle them
- can provide supportive care and cooperate in cases of eye involvement due to systemic diseases
- carry out a targeted anamnesis technique
- demonstrate orienting examination methods
- can assess the need for intervention
- demonstrate therapeutic measures in emergency situations

Lecture: 2 hs per week

Clinical training: 5 hs course per week for 4 consecutive weeks in winter or summer

Type of exam: Written test at the end of the semester with multiple choice and text questions.

Required equipment: None

5 ECTS

Orthopaedics

Aims and contents:

The course deals with congenital and acquired diseases of the musculoskeletal system
The students can:

- take an orthopaedically targeted medical history,
- assess common orthopaedic image diagnoses,
- name conservative and surgical treatment options.

Lecture: 1 h per week

Clinical training: Self-enrollment in 2 course dates in different departments and preparation of a discharge summary, in winter or summer

Type of exam: Written test at the end of the semester.

Required equipment: Doctor's coat, goniometer, reflex hammer

3 ECTS

Otorhinolaryngology (Ear, Nose and Throat)

Aims and contents:

Lecture: Ear, nose and paranasal sinuses, oral cavity with salivary glands, larynx and pharynx, diseases of the external throat, phoniatrics and pedaudiology

Course: Audiology, sonography, phoniatrics, case discussions, examination techniques, nose and epistaxis, dysphagia, sleep medicine, dizziness, allergology, radiology in ENT

Entry level: Basic knowledge of specific examination techniques in ENT medicine, ENT clinical trainee course

At the end of the course the students can:

- Perform a complete ENT examination of a patient, apply examination techniques with different endoscopes (nose, larynx) and acquire basic knowledge of performing audiometry and a sonographic examination of the soft tissues of the throat
- differentiate between ENT-typical diseases and other diseases
- take emergency measures in the ENT area

Lecture: 2 hours per week

Clinical training Course: 4 hs per week for 5 consecutive weeks in winter or summer

Type of exam: multiple choice test at the end of the semester.

Required equipment: Doctor's coat

5 ECTS

Neurology

Aims and contents:

Students learn the basics of neurology. Most of the course and lecture deal with neurological diseases in detail, and a small part is devoted to the neuro-surgical department (3 units). Students will examine patients and apply the knowledge provided in the lectures. The course will focus on symptoms-related neurological skills at the bedside. Important themes will be: multiple sclerosis, stroke, degenerative diseases, dementia, neuroanatomy of brain and spinal cord, tumours of brain and spinal cord, intervertebral disc degeneration, craniocerebral trauma, skull-base fractures, meningitis, and cranial nerve neuropathies. There will be an examination at the end of the teaching unit / lecture.

Lecture: 2 hs per week (for two terms, winter and summer)

Clinical training: 2 hs per week in winter or summer

Type of exam: Written test at the end of the semester.

Required equipment: Required equipment: Students should use a doctor's coat, stethoscope, reflex-hammer and small pupil torches.

7 ECTS

Psychiatry, Psychotherapy / Psychosomatic Medicine and Psychotherapy

(only in combination)

If you would like to choose this course, you need to have at least B2 level of German!

Aims and contents:

Lecture: Introduction - Psychopathological findings and interviewing - Depressive disorders - Addictive disorders - Eating disorders - Bipolar disorders/suicidality - Anxiety and obsessive-compulsive disorders - Personality disorders - Crisis intervention - Somatoform disorders - Psychotic disorders - Trauma disorders - Child and adolescent psychiatry

Course: Various interview techniques are taught in the first few hours of the internship. Later, on each day of the internship, a student will take a patient's medical history. Based on the current case, a psychopathological diagnosis is then made together, the patient's diagnosis is determined and the clinical picture is discussed in more detail. Students should be introduced to as broad a spectrum of psychiatric clinical pictures as possible.

The students acquire knowledge about

- the symptoms of the most important psychiatric clinical pictures,
- the epidemiology and aetiology (including neurobiological principles) of psychiatric disorders,
- the classification of psychopathological findings including psychiatric and somatic differential diagnoses,
- the creation of multimodal therapy plans, taking into account pharmacological, psychotherapeutic and sociotherapeutic aspects.

The students acquire practical skills in

- conducting psychiatric anamnesis interviews and interviews with psychiatric patients,
- compiling a psychiatric medical history,
- formulate questions based on case studies,
- independently develop solutions.

Lecture: 8hs per week for 4 consecutive weeks

Clinical training: 14hs per week for 4 consecutive weeks, preparing and conducting a patient interview under supervision in winter or summer

Type of exam: Written test at the end of the course with multiple choice questions.

Required equipment: None

5 ECTS

Urology

Aims and contents:

Lectures and case seminars on uro-oncology, urolithiasis, andrology, benign prostate enlargement, continence, urological traumatology and emergencies, pediatric urology. Participation in urological operations and in the care of outpatients.

Entry level: Anatomical knowledge of the urogenital tract; basic urological clinical pictures; urinary tract infections, cancers (prostate, bladder, kidney and testicles), emergencies (macrohaematuria, colic, testicular torsion, sepsis), prostatic hyperplasia, incontinence; screening and early detection of cancer, basic surgical techniques.

At the end of the course students will be able to recognize special urological clinical pictures and name differential diagnoses, describe and explain surgical techniques and examinations.

Lecture: 2 h per week

Clinical training: 4 hs per week for 5 consecutive weeks, alternatively two full days in winter or summer

Type of exam: Written test at the end of the semester with 30 multiple choice questions

Required equipment: Doctor's coat and stethoscope

5 ECTS

Notes