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#### GERMAN GRADING SCALE/ECTS GRADING SCALE:

German Grading Scale	Definition	ECTS Grading Scale	Percentage of successful students normally achieving this grade	Definition
1	<b>Excellent</b> Outstanding performance with only minor errors	A	10	<b>Excellent</b> Excellent performance with only minor errors
2	<b>Good</b> Above the average standard but with some errors	B	25	<b>Very Good</b> Above the average standard but with some minor errors
3	<b>Satisfactory</b> Generally sound work with a number of notable errors	C	30	<b>Good</b> Generally sound work with a number of notable errors
4	<b>Sufficient</b> Performance meets the minimum criteria	D	25	<b>Satisfactory</b> Fair but with significant shortcomings
-		E	10	<b>Sufficient</b> Performance meets the minimum criteria
5	<b>Fail</b> Some more work required before the credit can be awarded	FX	-	<b>Fail</b> Some more work required before the credit can be awarded
	<b>Fail</b> Considerable further work is required	F	-	<b>Fail</b> Considerable further work is required

#### 3. Passing grade

The minimum passing grade is 4.

Students who are not present at the examination get the grade 5 (FX, fail).

**4. clinical practicals:** 1.5 ECTS per week credits without a grade/exam

## 1. Klinisches Semester

ECTS Course Code	Subject		Hours per Semester	ECTS credits
<b>M-O-P-1</b> <b>Grundlagen klinischer Untersuchung</b>	The Clinical Examination Course consists of thirteen segments covering different fields of medicine with a total of 12 credits. As a rule, partial enrolment is impossible. The Practicals follow a special time scheme which is handed out at the beginning of the Course.	Content: Principles of clinical examination. Demonstration of physical examination methods, use of examination techniques using standard equipment.	84	7
<b>5-M-O-S-1</b> <b>5-M-V-L-13</b> <b>Epidemiologie, med. Biometrie und med. Informatik</b>	Epidemiology, medical biometry and medical informatics including  Seminar Lecture Medical Statistics and Medical Informatics	Content: Students will acquire an understanding of statistical methods and their application in medicine. Furthermore, the students will explain terms of genetic epidemiology. Assessment: written examination Knowledge and skills achieved: simple mathematical basics	14 14	4
<b>5-M-O-P-3</b> <b>5-M-V-L-15</b> <b>Klinische Chemie und Hämatologie</b>	Clinical Chemistry and Haematology  Course Content: Laboratory skills and theory in chemical and haematological analysis (chemical and enzymatic determinations, clotting analysis, blood group typing) Assessment: MCQ examination, check of practical records, oral exams Knowledge and skills achieved: Basic laboratory skills, general theory in chemical and haematological analysis  28h per semester	Vorlesung Pathobiochemie Biochemistry and Clinical Pathology of Cell and Organ Function  Lecture  Content: Exemplary presentation of typical disorders affecting metabolic processes and regulatory mechanisms and their impact on clinical, chemical and haematological laboratory values Assessment: - Knowledge and skills achieved: Theoretical background for practical course of clinical chemistry and haematology  14h per semester	28 h  14	4
<b>5-M-O-P-5 practical</b> <b>5-M-V-L-10 lecture</b> <b>Pathologie</b> <b>Pathology including</b>	Content: Microscopy, demonstration of autopsy slides and theoretical background for both general pathology and chosen cases. The student learns to recognise pathologic changes by examination of histopathological slides and to correlate them to both general and specific disease mechanisms. Topics compromise cell and tissue damage, metabolic diseases, growth disorders, tumours, inflammations, immunopathology and chosen diseases affecting various organ systems	Assessment: written examination using autopsy slide specimens	Practical 28 Lecture 42	4

1. Klinisches Semester

ECTS Course Code	Subject	Hours per Semester	ECTS credits
<p><b>5-M-O-S-7 seminar</b>  <b>5-M-V-L-9 lecture</b></p> <p><b>Humangenetik</b></p>	<p>Human Genetics</p> <p>Seminar</p> <p>Content: Principles and practice of Human Genetics: Formal and population genetics, cytogenetics, molecular genetics, prenatal diagnosis, genetic counselling, hereditary cancer syndromes</p> <p>Assessment: MCQ examination with grading</p> <p>Knowledge and skills achieved: Principles and practice of Human Genetics. Introduction and overview to genetic diseases and genetic testing</p> <p>14h per semester</p>	<p>Lecture</p> <p>Content: Mechanisms of genetics in disease etiology. Principles and practice of Human Genetics. Selected case reports and patient interviews. Attendant lecture to the Seminar Human Genetics.</p> <p>Assessment: -</p> <p>Knowledge and skills achieved: Basic principles of Human Genetics</p> <p>14 h per semester</p>	<p>3</p>
<p><b>5-M-O-S-8 seminar</b>  <b>5-M-V-L-16 lecture</b></p> <p><b>Geschichte, Theorie und Ethik der Medizin</b></p>	<p>History, Theory and Ethics of Medicine including</p> <p>Seminar Lecture</p> <p>Content: A survey of the history of medicine, important concepts of medicine, aspects of the history of ideas and social developments, current problems in medical ethics and alternative medical approaches: humoral pathology and religious medicine; medicine in mediaeval times: leprosy and pest medicine in the 18th and 19th century; medicine during National Socialism; medical anthropology and health care ethics</p>	<p>Assessment: written examination with open and MC questions</p> <p>Knowledge and skills achieved: basic knowledge of periods and concepts in the history of medicine; contextualisation of medical and ethical problems; interpretation of classical medical texts</p>	<p>28 h per semester</p> <p>4</p>

## 2. Klinisches Semester

ECTS Course Code	Subject		Hours per Semester	ECTS credits
6-M-O-P-3 practical  Grundlagen klinischer Untersuchung Basic principles of Clinical Examination Part II (Surgery, Gynaecology, Otorhinolaryngology (ENT), Paediatrics, Psychiatry, Urology)	Content: Principles of clinical examination. Demonstration of physical examination methods, use of examination techniques using standard equipment.	Assessment: -  Knowledge and skills achieved: -	84	5
6-M-O-P-1 practical 6-M-V-L-10 lecture  Mikrobiologie, Virologie	Microbiology, Virology including  Practical and Lecture  Content: Etiology and pathogenesis of infectious diseases; microbiological diagnosis of infectious diseases; simple methods for isolating and identifying pathogens; role of antibodies in the diagnosis of infectious diseases; techniques for detecting antibodies against pathogens; susceptibility testing of bacteria, fungi and viruses against antimicrobial agents; disinfection and sterilisation; laboratory safety	Assessment: MCQ examination and practical / oral examination, check of practical record  Knowledge and skills achieved: Knowledge of infectious diseases and their causative agents; knowledge of the relevant diagnostic procedures including serological techniques and their limitations; detailed knowledge of the methods for obtaining suitable clinical materials for diagnosing infectious diseases; knowledge of the principles of antimicrobial chemotherapy.	56 28	6
6-M-O-P-2 practical 6-M-V-L-9 lecture  Hygiene	Hygiene including  Content: Environmental (water, soil, air, sewage) hygiene, environmental medicine and health, hospital hygiene and epidemiology, surveillance of nosocomial infections; outbreak management; infection prevention and control, sterilisation, disinfection and disinsection, isolation measurements; food hygiene, preservation and processing, Immunology, Immunoprophylaxis and vaccinations, travel and health;	occupational hygiene and legislation prevention of occupational accidents, sick building syndrome and building related illnesses; introduction into social medicine, problems of disease aetiology, prevention of diseases, health education, rehabilitation, structure of medical care, social security, health economics	56 14	5

2. Klinisches Semester

ECTS Course Code      Subject      Hours per Semester      ECTS credits

	<p>occupational health and diseases; occupational influences (noise, physical, psychological, chemical and biological factors);</p>	<p>Assessment: Quality of seminar co-operation and presentation</p> <p>Knowledge and skills achieved: Basic knowledge in the cited topics; Practice of scientific working (data base inquiry) and presentation</p>		
<p>6-M-O-S-4 seminar 6-M-V-L-8 lecture</p> <p>Pharmakologie, Toxikologie</p>	<p>Pharmacology, Toxicology including</p> <p>Practical and Lecture</p> <p>Content:</p> <p>General Pharmacology: Modes of drug administration, drug absorption, bioavailability; distribution of drugs in the organism; drug metabolism; pharmacokinetics for a single or repeated administration(s); drug excretion; drug action: receptor-mediated and receptor-independent: agonists, antagonists and principles of structure-activity relationship; dose-response relationship; adverse drug reactions; interactions between drugs; individual variability of the response to drugs, pharmacogenetics; therapeutic index and evaluation of the risk/benefit relationship of a drug; development of new drugs; the role of Industry, Government and Academics</p> <p>Systematic Pharmacology: Drugs which act at the autonomic nervous system: muscarine receptor agonists and antagonists, cholinesterase inhibitors; ganglionic and neuromuscular blockers; <math>\alpha</math>- and <math>\beta</math>-adrenoceptor agonists and antagonists. Drugs acting in the central nervous system: opioid analgesics: agonists, partial agonists and antagonists; anti-Parkinson drugs; benzodiazepines; other hypnotics and antianxiety drugs; psychostimulants and hallucinogenic drugs; general anaesthetics; antidepressants and mood stabilising drugs; antipsychotics, antiepileptic drugs. Anti-inflammatory and local anaesthetic drugs: local anaesthetics, antimigraine drugs, non-steroidal antiinflammatory and analgesic drugs; antirheumatics modifying the disease; anti-gout drugs; antihistamines. Drugs influencing cardiovascular and kidney function: anticoagulants; carbonic anhydrase inhibitors and osmotic diuretics; loop and Henle's diuretics, thiazides, potassium savers;</p>	<p>ACE-inhibitors and H AT1 receptor-antagonists; calcium channel blockers; vasodilators; thrombolytic agents; drugs used for treatment of hemorrhages; antidiyslipidemics. Digestive system drugs: H2 - receptor antagonists, protonic pump inhibitors; antacids; prostaglandins antiemetics: dopamine and H 5-HT3 receptor antagonists; prokinetic, laxative and anti-diarrheal drugs. Respiratory system: drugs against allergic rhinitis, chronic obstructive bronchopneumopathy, cough; H<math>\beta</math>2-adrenoceptor agonists; corticosteroids, xanthines; criteria for the choice of antiasthmatic drugs. Endocrine system drugs: hypothalamic and pituitary hormones, thyroid hormones; insulin preparations; oral hypoglycaemic drugs; estrogens; progestogens; androgens; adrenocorticoid hormones; contraceptives. Hemopoietic drugs: iron, folic acids; vit. B12; erythropoietin; colony-stimulating factors. Osseous metabolism drugs: vit. D; calcium; biphosphonates; estrogens; calcitonin.</p> <p>Antiinfections chemotherapeutics: antibiotics influencing the cell wall; drugs for therapy in infections by worms; classification of antimicrobials; bacteriostatic and bactericidal drugs, spectrum of action; drug resistance; complications in antibiotic therapy; choosing antimicrobial drugs; sulphonamides; trimetoprim and cotrimoxazol; penicillins, cephalosporins and other <math>\beta</math>-lactams; tetracyclines and chloramphenicol; aminoglycosides, macrolides, lincosamides; quinolones; urinary system antiseptics; fluoroquinolones; antituberculosis agents; antifungal agents; chemotherapy in trypanosomiasis and leishmaniasis; drugs against respiratory viruses and herpes virus; anti-HIV drugs; drugs vs. viral hepatitis. Antineoplastic chemotherapeutics: principles of antineoplastic chemotherapy; antimetabolites, cytotoxic</p>	<p>112 hours per semester 28 hours per semester</p> <p>antibiotics, alkylating agents, drugs acting at microtubules; steroid hormones and antagonists.</p> <p>Toxicology: Experimental methods of controlling toxicity of drugs and xenobiotics; their toxic manifestation; dose-response and time-effect relations; antidotes and other antitoxin measures: plant toxins; animal toxins; toxic gases; insecticide agents, heavy metals; carcinogenic agents; alcohols; nicotine.</p> <p>Assessment: written examination and graded oral presentation</p> <p>Knowledge and skills achieved: Profound knowledge in General and Systematic Pharmacology as</p>	<p>11</p>

## 2. Klinisches Semester

ECTS Course Code	Subject		Hours per Semester	ECTS credits
			a basis for further studies in Clinical Pharmacology and for treatment of patients with drugs	
6-M-O-S-5	<p>General Medicine</p> <p>Seminar</p> <p>Content: Introduction (Special relation patient/doctor; Long-term perspective; Special functions of GP; Meaning of Bio-Psycho-Social; Unselected spectrum of diseases) Chronic diseases (Different approach; Hypertension; Diabetes; COPD; CHD; Myocardial dysfunction) Palliative Care (Ethic aspects; Patient's will; Pain therapy schedules; Accompanying of the family) Multimorbidity (Geriatric assessment;</p>	<p>Pharmacological rules; House visits; Coordinative functions)</p> <p>Drug/Alcohol abuse ( Diagnosis; Typical symptoms; Co-Morbidities; Techniques of communication; Options of therapy; Complications)</p> <p>Preventive Care ( Unique role of GP; Individual or group consulting; Sectors of involvement; Options)</p> <p>Acute Illnesses ( Emergencies in the private clinic; so called common diseases; Differential diagnosis of the most frequent incidents of consultation)</p> <p>Assessment: written examination</p>	14 hours per semester	1
6-M-O-S-7	<p>Conversation Guidance and Communication</p> <p>Seminar</p> <p>Content: Communication and conversation with patients are part of the medical diagnostics and treatment. The following topics are part of the course:</p> <p>Psychosocial aspects as parts of case history and planning of treatment Different settings for conversation (i.e. information diagnosis / prognosis...) Basics in diagnostics of psychic „reactions“ (i.e. Reactive depression) and coping strategies Patient-oriented communication Handling of emotions communication in the team / with other professions Doctor-centred aspects: Handling of own affects Handling of criticism, conflicts, medical malpractice Work organisation Documentation</p>	<p>Assessment: Seminar paper to one of the main topics</p> <p>Knowledge and skills achieved: The student should be able to</p> <ul style="list-style-type: none"> <li>conduct diagnostic and therapeutic conversations with patients</li> <li>collect the essential information in an effective manner</li> <li>deal appropriately with arising emotions</li> <li>assign psychopathological symptoms to their meaning</li> <li>recognise and consider the influence of psychosocial aspects such as addiction, violence etc.</li> <li>reflect on his personal part in communication difficulties</li> <li>deal with own emotions as well as with mistakes, criticism and conflicts</li> </ul> <p>Finally, the basics of time management and documentation are to be learned with the objective of optimised patient care</p>	14	1

### 3. Klinisches Semester

ECTS Course Code	Subject		Hours per Semester	ECTS credits
7-M-O-P-1 practical 7-M-O-S-5 seminar 7-M-V-L-7 lecture  Innere Medizin	Internal Medicine including  Practical and Seminar and Lecture  Content: Pulmonary disease, cardiology, angiology, hypertension, infectious disease, rheumatology, immunology, nephrology, gastroenterology, haematology, oncology, metabolic disorders, hepatology, endocrinology, psychosomatic diseases  Diagnosis and therapy in internal medicine with special emphasis on physical examination, interpretation of laboratory data and imaging techniques	Identification and evaluation of diagnostic work-up algorithms for major lead symptoms (i.e. fever of unknown origin, anemia, diarrhea, enlarged lymph node, tumor in the liver, icterus, coma etc.)  Work-up of patient case histories and development of diagnosis and therapy algorithm  Assessment: written examination with MC questions  Knowledge and skills achieved: To evaluate a patient presenting with disease symptoms and to perform differential diagnosis and develop diagnostic and therapeutic decision algorithms.	35 14 42	6  3
7-M-O-P-2 practical 7-M-V-L-8 lecture Dermatologie, Venerologie	Dermatology, Venerology including  Practical and Lecture  Content: Diagnosis and therapy of dermatological diseases referring to macro morphological and micro morphological analysis including the presentation of patients	Assessment: MCQ-examination  Knowledge and skills achieved: Compact introduction to the most important aspects of dermatology, Provides a basic understanding of dermatological diseases.	30,8 28	5
7-M-O-P-3 7-M-V-L-9  Augenheilkunde	Ophthalmology including  Content: examination of patients with various eye problems; exposure to ophthalmic surgery; lectures on general ophthalmology with focus on pathogenesis, diagnosis and treatment of certain diseases: Ophthalmic emergencies: to recognise the following entities and to react appropriately: acid and alkali burns; penetrating/perforating trauma; central retinal artery occlusion / central retinal occlusion; acute angle closure glaucoma. Systemic diseases and Ophthalmology: to know which patients to send for an ophthalmologic check-up: Diabetes; vascular diseases / hypertension; headache (various ophthalmologic causes); papilledema. Pathophysiology and treatment of major eye diseases: lid	problems; corneal disease; cataract; glaucoma; retinal detachment; macular degeneration; strabismus; amblyopia. Most commonly used surgical techniques: cataract surgery; glaucoma surgery; retinal surgery; lid surgery. Transfer of pathophysiology of general disease onto ocular disease: intraocular inflammation and sequelae; vascular occlusion and sequelae. Basic concepts and fundamental terms in Ophthalmology: lid tumours; uveal melanoma; retinoblastoma Assessment: written examination Knowledge and skills achieved: ability to react appropriately when patients complain about eye problems or suffer from ocular trauma / diseases; basic knowledge in diagnostic and treatment of major eye diseases	30.8 14	5

### 3. Klinisches Semester

ECTS Course Code	Subject		Hours per Semester	ECTS credits
7-M-O-P-4 practical 7-M-V-L-10 lecture Hals,- Nasen-, Ohrenheilkunde	Otorhinolaryngology (ENT) including Content: Case related demonstration of diseases in otorhinolaryngology including modern aspects of diagnosis and therapy. The student is shown surgical procedures as well as functional diagnostic tools especially audiometry, neurootology, vestibular function and sonography. The accompanying lecture deals with basic knowledge, needed in the practical course.	Assessment: written examination  Knowledge and skills achieved: Knowledge of otorhinolaryngological diseases and therapy. Special otorhinolaryngological methods of investigation as for example endoscopy, otoscopy and laryngoscopy.	30.8 14	5
7-M-O-S-6 seminar Infektiologie, Immunologie	Infectiology, Immunology seminar  Content: Assessment: written examination Knowledge and skills achieved:		14	1
7-M-O-P-5 practical 7-M-V-L-10 lecture Klinisch-pathologische Konferenz	Clinical-pathological conference (special pathology) Part I  Practical and Lecture Part I Pathology of he courses included in the 3rd semester	Content:  Assessment:  Knowledge and skills achieved:	10 18	2

#### 4. Klinisches Semester

ECTS Course Code	Subject		Hours per Semester	ECTS credits
8-M-O-P-1 practical 8-M-O-S-5 seminar 8-M-V-L-8 lecture  Chirurgie	<p>Surgery including:</p> <p>Practical and Seminar and Lecture</p> <p>Content: Lectures with systematic presentation of the entire field of surgery including abdominal, thoracic, vascular, transplant, cardiac, oral and maxillofacial surgery and traumatology</p>	<p>Assessment: MCQ-examination and interdisciplinary oral examination together with orthopaedics, urology and anaesthesiology</p> <p>Knowledge and skills achieved: Diagnosis and therapy of all important surgical diseases with special emphasis on physical examination, interpretation of laboratory data and imaging techniques</p>	35 14 42	6  3
8-M-O-P-2 practical 8-M-V-L-9 lecture  Orthopädie	<p>Orthopaedics including</p> <p>Practical and Lecture</p> <p>Content: Diagnosis and therapy of orthopaedic diseases</p>	<p>Assessment: interdisciplinary oral examination together with surgery, urology and anaesthesiology</p> <p>Knowledge and skills achieved: Basic principles and knowledge of orthopaedic diseases</p>	30,8 14	5
8-M-O-P-3 8-M-V-L-1  Urologie	<p>Urology including</p> <p>Practical and Lecture</p> <p>In preparation for the practical, lectures on the following topics will be held and must be attended to participate in practical: introduction; bladder cancer; kidney tumours; urogenital abnormalities, renal transplantation; neurogenic bladder disorder; urological emergencies; testicular cancer; urolithiasis; paediatric urology, urinary tract infections; benign prostatic hyperplasia; erectile dysfunction; gynaecological urology; prostate cancer</p> <p>Content: The practical begins with participation during morning rounds and the clinical conference. Afterwards, the students are assigned to the following 3 rotations:</p> <p>In-patient-care: Introduction to general basic skills: history taking, physical examinations; practical skills (venous blood sampling, placement of iv-lines, injections)</p>	<p>, application and change of wound dressings, gastric tubes etc); participation in giving preoperative informed consent; introduction to urological skills: clinical techniques of examination; placement and care of urinary catheters; sampling and dipstick testing of urine, urine cultures</p> <p>Operating room: patient preparation and positioning; surgical scrubbing; assistance in urological procedures; hospitalization in endourological procedures with video transmission; surgical knotting techniques; introduction to urologic surgical appliances, catheters and instruments</p> <p>Amulatory: Hospitation in urological units: extracorporeal shockwave lithotripsy; Uroflowmetry, Urodynamics; Endoscopy; Intervention and minimal-invasive procedures; radiological examinations; Hospitation and performance of ultrasound examinations; Voluntary participation in urological consultation hours (Urological paediatrics, Andrology, Infertility, Incontinence)</p> <p>Assessment: interdisciplinary oral examination together with surgery, orthopaedics and anaesthesiology</p> <p>Knowledge and skills achieved: Basic skills and knowledge in general urology</p>	30,8 14	5

#### 4. Klinisches Semester

ECTS Course Code	Subject		Hours per Semester	ECTS credits
8-M-O-P-4 Practical 8-M-V-L-7 Lecture  Anästhesiologie	Anaesthesiology including  Content: The principles of Anaesthesiology and intensive care. * General anaesthesia: intravenous anaesthetics, volatile anaesthetics, muscle relaxants, opioids, intubation, crush-intubation * Regional anaesthesia: plexus axillaris, spinal epidural anaesthesia, peripheral blocks, postoperative pain therap	y * Intensive care: ventilation, fluid therapy, antibiotics, sepsis, shock  Assessment: interdisciplinary oral examination together with surgery, urology and anaesthesiology  Knowledge and skills achieved: -	30.8 14	5
8-M-O-S-6 Notfallmedizin	Emergency Medicine  Seminar and Lecture	Content:  Assessment:  Knowledge and skills achieved:	14 14	1
8-M-O-S-8  Schmerzmedizin	Pain Medicine  Seminar and Lecture  Content:  Assessment:  Knowledge and skills achieved:		7 14	2
5-M-O-S-4 seminar 5-M-V-L-14 lecture  Bildgebende Verfahren, Strahlenbehandlung und Strahlenschutz	Imaging techniques, radiotherapy and radiation protection including  Content: The physics of radiation and its effects, radiation biology, dosimetry, practical safety measures, techniques of X-ray examinations, interpretation of X-ray images of the thoracic and abdominal organs and the musculo-skeletal system, contrast media, nuclear medicine and the basic principles of modern radiotherapy ,Imaging techniques and diagnostic methods in nuclear medicine, pharmacology of radioisotopes, principles of physiological concentration of radioisotopes.	Assessment: MCQ examination and certificate of attendance Knowledge and skills achieved: Knowledge about the physics of x-rays, knowledge about the physics of magnetic resonance imaging, knowledge about the clinical applications of plain films, computed tomography, ultrasound and magnetic resonance imaging, knowledge about basic principles and side effects of contrast media, interpretation of X-ray images, magnetic resonance images and computed tomography images of the thoracic and abdominal organs, knowledge about the typical imaging features of common diseases of the abdomen, chest and brain	14 14	2
8-M-V-L-10 Klinisch-pathologische Konferenz	Clinical-pathological conference (special pathology) Part II  Practical  Content:	Assessment: written examination  Knowledge and skills achieved:	8	2

## 5. Klinisches Semester

ECTS Course Code	Subject		Hours per Semester	ECTS credits
9-M-O-P-2 practical 9-M-V-L-9 lectures 9-M-V-L-9  Neurologie	<p>Neurology (incl. neurosurgery)            Content: Headache, cerebrovascular diseases, disorders of the peripheral and cranial nerves, muscle disorders, infections of the central nervous system, epilepsy, sleep disorders, vertigo, movement disorders, ataxias, inflammatory disorders of the central and peripheral nervous system.</p> <p>Assessment: written examination together with Neurosurgery (multiple choice and open questions)</p> <p>Knowledge and skills achieved:            The student will learn to perform a detailed neurological examination: Upon completion he/she will understand the anatomy, pathophysiology, and the principles of the treatment of neurological disorders.</p> <p>Lecture Neurosurgery</p> <p>Content: Spontaneous intracerebral haemorrhage; aneurysmal subarachnoid haemorrhage; cerebral arteriovenous malformations; head injury and intracranial pressure; degenerative, tumorous, infectious, and traumatic disorders of the spine; benign and malignant tumours of the brain; hydrocephalus; epilepsy surgery; paediatric neurosurgery; pain and peripheral nerve surgery</p>	<p>Assessment: Oral examination</p> <p>Knowledge and skills achieved: Diagnosis and treatment of cerebrovascular disease and spontaneous intracranial haemorrhage; Glasgow coma scale and classification of head injury; description of significant pathological findings on CT (i.e. epidural hematoma, or impression fracture); clinical and radiological findings in degenerative and traumatic disorders of the spine and their treatment; management of neurosurgical emergencies; classification and treatment of brain tumours; types and treatment of hydrocephalus; indications for resective epilepsy surgery</p>	30,8 28 14	5
9-M-O-P-3 9-M-V-L-10  Psychiatrie und Psychotherapie	<p>Psychiatry and psychotherapy</p> <p>Group seminars organized according to principles of Problem Based Learning (PBL) with several teaching modules offering actual patient exposure            Introductory concept lecture</p> <p>Content: Systematic assessment of psychopathological phenomena and classification into psychiatric disorders, diagnostic methods, prognosis, therapeutic strategies, primary and secondary prevention and rehabilitation</p>	<p>Assessment: written examination with MC questions, oral re-examination in case of failure</p> <p>Knowledge and skills achieved: Basic knowledge about pathophysiology, diagnosis, course and treatment of common psychiatric disorders (depression, schizophrenia, anxiety, dementia and addiction). Basic level skill in psychiatric interviewing techniques.</p>	15,4 14	5
9-M-O-P-4 9-M-V-L-7	<p>Psychosomatics and psychotherapy</p> <p>Content: Covered topics are the biopsychosocial model, diagnostic classification systems, diagnostic criteria for specific mental/psychosomatic disorders, psychotherapy and</p>	<p>Assessment: oral examination</p> <p>Knowledge and skills achieved: Recognising symptoms of psychosomatic disorders, conducting a clinical interview under a psychodynamic perspective, formulating a descriptive diagnosis in terms of ICD 10 / DSM IV</p>	28 28	4

5. Klinisches Semester

ECTS Course Code      Subject      Hours per Semester      ECTS credits

<p>Psychosomatik und Psychotherapie</p>	<p>integrative psychosomatic treatment strategies. The practical training focuses on diagnostic and interview skills.</p>			
<p>9-M-O-S-5</p> <p>Klinische Pharmakologie/Pharmakotherapie</p>	<p>Clinical Pharmacology/Pharmacotherapy</p> <ol style="list-style-type: none"> <li>1. Pharmaceutical development/clinical examination/acquisition and evaluation of published pharmaceutical data: Preclinical examination, clinical examination (Ethics Committee, legal aspects), admission procedures, biometry, reliable sources of information, search strategies, evaluation of studies, practical examples.</li> <li>2. Pharmacokinetics: Repetition of basic pharmacokinetic terms, summary of pharmacokinetics in risk populations, therapeutic drug monitoring, evaluation, dose calculation, practising dose calculation with clinical examples.</li> <li>3. Pharmacogenetics: Polymorphisms (CYP450, transferases, G6PDH), clinical impact (dose relevance, efficacy, safety), diagnostics, dose individualization, clinical examples.</li> <li>4. Adverse pharmaceutical effects I: Frequency, classification, epidemiological and economic relevance, evaluation of causal interrelation, post marketing surveillance, clinical examples.</li> <li>5. Adverse pharmaceutical effects II: Decision finding in suspected adverse events, evaluation incl. single-case-randomized-trial-design, registration, successive procedures, local pharmaceutical committies, clinical examples.</li> <li>6. Drug interactions and incompatibilities: Frequency, classification, epidemiological and economic relevance, mechanisms (induction, inhibition, complexing, antagonism), avoidance and considerations before prescription, clinical examples.</li> <li>7. Intoxication and withdrawal syndromes: Typical substance classes, detection, symptoms, emergency measures, prevention, clinical examples.</li> <li>8. Pharmaceutical therapy in risk populations I: Restricted kidney function and kidney compensation therapies (diagnostics, evaluation, procedures, practical exercises in case studies).</li> <li>9. Pharmaceutical therapy in risk populations II: Kidney disorders (diagnostics, evaluation, procedures, practical exercises in case studies).</li> <li>10. Pharmaceutical therapy in risk populations III: Geriatric patients and children (special features, evaluation, procedures, practical exercises in case studies).</li> </ol>	<ol style="list-style-type: none"> <li>12. Prescription of drugs: Patient education and instruction, placebo effect, prescription, opioids, basic legal principals, off-label-use, practical exercises.</li> <li>13. Difficulties in cases of non-efficiency: Detection, monitoring, non-compliance, non-response, economic relevance, clinical examples.</li> <li>14. Pharmaco-Economy: Pharmaco-economical problems (cost pool, cash flow, pharmaceutical market, pharmaceutical industry, political institutions and instruments), methodology of pharmaco-economical studies (design, outcome parameters, data origin, cost-effectiveness, cost-minimization, cost-utility, cost-benefit, decision models), discussion of chosen subjects (rheumatoid arthritis, HIV, malaria, vaccination/prevention, "lifestyle drugs)</li> </ol> <p>Pharmaco-Therapy with case presentation:</p> <ol style="list-style-type: none"> <li>1. Pharmaco-therapy of arterial hypertension.</li> <li>2. Pharmaco-therapy of cardiac insufficiency.</li> <li>3. Pharmaco-therapy of coronary heart disease/myocardial infarct and therapy with coagulation and aggregation inhibiting substances.</li> <li>4. Pharmaco-therapy of the respiratory tract diseases (asthma, COPD).</li> <li>5. Pharmaco-therapy of gastrointestinal diseases.</li> <li>6. Pharmaco-therapy of Diabetes mellitus, dyslipidemia and other metabolic disorders.</li> <li>7. Pharmaco-therapy of thyroid diseases, osteoporosis and therapy with sexual hormones.</li> <li>8. Pharmaco-therapy of bacterial infections.</li> <li>9. Pharmaco-therapy of viral, mycotic and parasitic infections.</li> <li>10. Pharmaco-therapy of psychiatric emergency situations and depressions, M. Parkinson, seizures, sleep disorders and migraine.</li> <li>11. Pharmacotherapy of acute and chronic pain.</li> <li>12. Pharmaco-therapy of rheumatic diseases / immunosuppression.</li> <li>13. Pharmaco-therapy of neoplasia (including supportive measures) and disorders of the water and electrolyte metabolism.</li> </ol>	<p>28</p>	<p>5</p>

## 5. Klinisches Semester

ECTS Course Code	Subject		Hours per Semester	ECTS credits
	11. Pharmaceutical therapy in risk populations IV: Pregnancy and breastfeeding (special features, evaluation, procedures, practical exercises in case studies).	14. Pharmaco-therapy with controversial drugs or drugs with restricted prescription recommendations (e.g. anabolic steroids, antidysmenorrhoids, carminativa, intestinal flora drugs, enzymes, immunostimulants, menopause drugs, therapeutica of the mouth and throat, venous drugs, vitamins, etc.), wound healing drugs and phyto-pharmaca. Assessment: written examination		
9-M-O-S-6 seminar  Medizin des Alterns und des alten Menschen	Geriatric medicine Content: Assessment: Knowledge and skills achieved:		14	1
9-M-O-S-7 seminar Rehabilitation, Physikalische Medizin und Naturheilverfahren	Rehabilitation, physical therapy and naturopathic treatment Seminar Content: Assessment: Knowledge and skills achieved:		14	1
10-M-O-S-9 seminar  Klinische Umweltmedizin	Clinical environmental medicine Seminar Content: Assessment: Knowledge and skills achieved:		7	1
9-M-O-S-8 Seminar 9-M-V-L-11 lecture  Rechtsmedizin	Forensic Medicine (incl. clinical ethics)  Content: Forensic thanatology, psychopathology, pathology, traumatology, toxicology, criminology, medical jurisprudence  Assessment: MCQ examination, seminar paper Knowledge and skills achieved: external examination, certification of the cause of death, description and certification of body harm and sexual environment		21 14	2
9-M-O-S-9 seminar 9-M-V-L-12 lecture Klinisch-pathologische Konferenz	Clinical-pathological conference (special pathology) Part III  Content: Assessment: Knowledge and skills achieve		8 13	2

## 6. Klinisches Semester

ECTS Course Code	Subject		Hours per Semester	ECTS credits
EF007 Practical 10-M-O-S-4 lecture Frauenheilkunde und Geburtshilfe	Gyneacology and obstetrics Practical and Lecture		2 weeks practical	3 3
EF012 Practical 10-M-O-S-5 lecture Kinderheilkunde	Paediatrics Practical and Lecture		2 weeks practical	3 3
QB010 10-M-O-S-8 QB Prävention, Gesundheitsförderung	Prevention, health promotion			1
EF001 6-M-O-S-5 Allgemeinmedizin	General Medicine -practical-		2 weeks practical	7
EF003 course 10-M-O-S-5 lecture Occupational Medicine and Social Medicine	Arbeitsmedizin Occupational Medicine Seminar and Lecture  Teaching content: Health promotion and occupational-specific work-related health hazards in hospitals occupational diseases,occupational illness and accidents at work  dust,pneumoconiosis and work chronic obstructive pulmonary diseases skin and work	Sozialmedizin Social Medicine  Seminar and Lecture  Teaching content: Seminar I: Health and disease in populations Classifikations, statistics, demography, epidemiology  Seminar II: Social determinants of health and disease	16 8	3

## 6. Klinisches Semester

ECTS Course Code	Subject	Hours per Semester	ECTS credits	
	<p>maternity protection act protection of young people at work</p> <p>disability and work mental load and strain work related cancer diseases</p> <p>Learning objectives Knowledge and skills in occupational medicine and health protection for the preventive and treatment of work-related influences,diseases and illness</p> <p>knowledge of stress and strain, disability management workplace health promotion</p>	<p>Models and definitions, risk factors, social risks, prevention of social risks</p> <p>Seminar III: Social consequences of disease and handicap Models and definitions, appraisal, rehabilitation, care</p> <p>Seminar IV: Quality, efficiency, management Financing, profitability and efficiency of supply, management approaches and problems, quality assurance</p> <p>Seminar V: International comparison Examples of social security and healthcare</p> <p>Seminar VI &amp; VII: Sozial medicine of selected diseases "Definitions and symptoms, frequencies and health economical effects of selected diseases as well as often problems and psychological stress of patients from self-help groups"</p> <p>Learning objectives Knowing, discussing and explaining of socio-medical parameters Knowing, discussing and explaining of models of social security and quality security as well as financing of these models Knowing, discussing and explaining of resilience and risk factors of selected socio-medical relevant diseases</p>		
<p>EF022</p> <p>10-M-O-P-1</p> <p>Wahlfach II</p>	<p>Wahlfach II</p>	<p><a href="https://www.medfak.uni-bonn.de/de/lehre-studium/studiengaenge/humanmedizin/klinik/wahlfach-ii-1">https://www.medfak.uni-bonn.de/de/lehre-studium/studiengaenge/humanmedizin/klinik/wahlfach-ii-1</a></p>	<p>2 weeks practical</p>	<p>9</p>