

## ECTS course catalogue for Model degree course in medicine



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## The Faculty of Medicine

The Faculty of Medicine was founded in 1966. Education in clinical disciplines was started in the summer of 1967, since October 1968 students have also been enrolled in preclinical studies. Shortly after its foundation, the plans for a new hospital integrating the Medical Faculty were presented.

In 1985 patients, students, doctors, nursing and administrative staff moved into the new university hospital (Universitätsklinikum). The new building housed the Medical Faculty with all its preclinical and clinical departments, a hospital with all its staff, the administration, libraries for staff and students, an audio-visual media centre and other health schools (like a school for medical-technical assistants, for physiotherapy, for nurses and for logopaedics) in order to enable an efficient interdisciplinary co-operation in education and research.

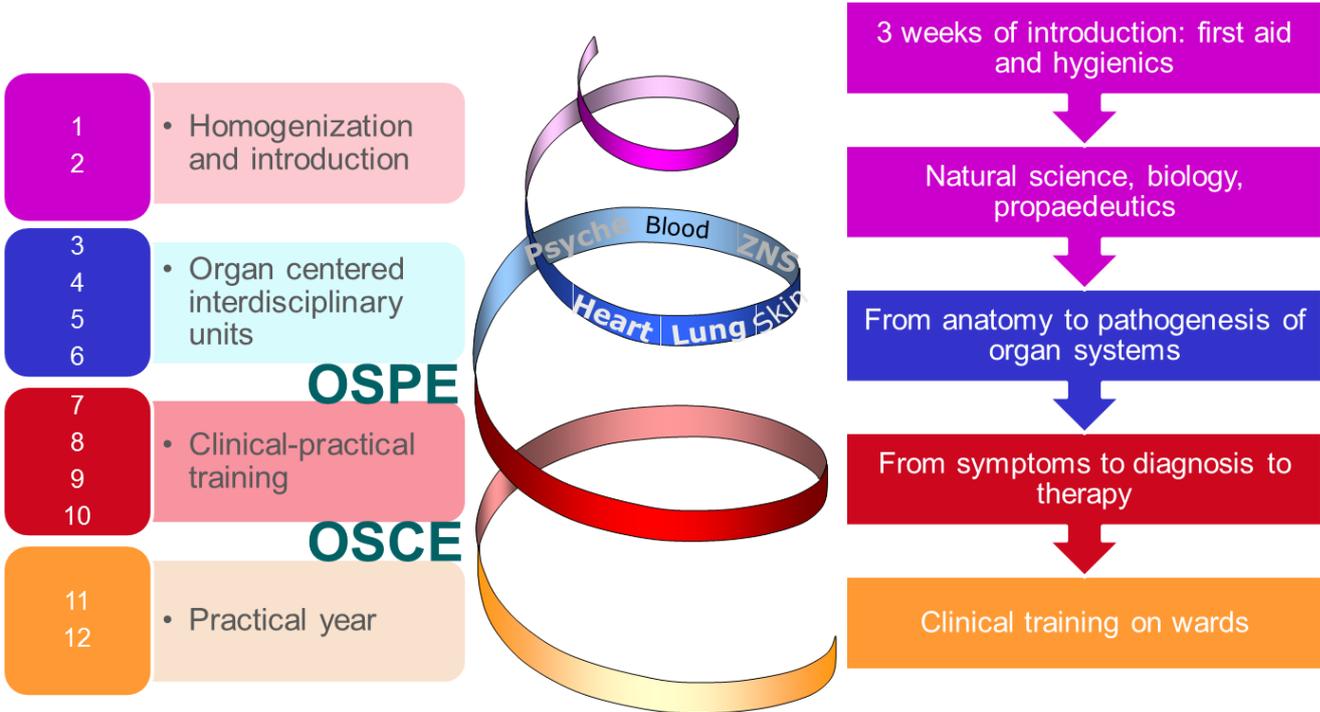
The Faculty of Medicine is part of a large university of technology; it offers the chance and challenge of interdisciplinary discussion, co-operation and research projects between medicine and science, engineering as well as humanities.

More than 20 institutes, interdisciplinary institutes and research centres, as well as over 30 clinics and the Faculty of Medicine under one roof, check for more information [www.ukaachen.de](http://www.ukaachen.de).

# Our model degree course in medicine - the learning spiral

Within the new medical licensing regulation, our Faculty was able to change and restructure our curriculum in 2003. The new curriculum, Aachener Modellstudiengang (short MSG), is an interdisciplinary and organ centred curriculum of 6 years.

We describe our curriculum as a learning spiral:



## ECTS overview and course description

### First cycle: Introduction

Not available for exchange students	
<b>Semester 1 (winter)</b>	Introduction and First Aid, Physics, Chemistry, Medical Terminology, Cell Biology part I (includes Biochemistry, Physiology, Biology)
<b>Semester 2 (summer)</b>	Cell Biology part II, Introduction to the human body, Medical Psychology and Sociology, Biometrics / Medical Statistics. To complete the first cycle all courses have to be passed and 60 days of attendant work have to be completed.

### Second cycle: Organ systems

#### Mandatory electives between semesters 4 – 10 (D-LSUD-4/10-Med-QP)

QP stands for Qualifikationsprofile, these are mandatory elective subjects within our educational and scientific profiles. Thus we recommend you registering in a few to consolidate your medical knowledge, in order to get to know some of the subject specialities of the Aachen medical curriculum and to meet some of the scientists in a given discipline at our Medical Faculty.

The registration and overview of the courses is only possible upon arrival, therefore you cannot add QPs in your Learning Agreement. There are no ECTS for QPs, however they can be listed in your transcript of records.

#### Semester 3 (winter)

<b>3-BEW Muscular system</b>		<b>9 ECTS</b>
Subjects	anatomy, physiology, histology, physics, biochemistry, pathology, neuropathology, genetics, radiology, traumatology, nuclear medicine, occupational medicine, orthopaedics	
Organisation	5 weeks (week 1-5) of lectures in the morning, seminars and practical training in the afternoon: - 8 x dissection - 2 x PBL* traumatology - 1 x seminar neuropathology - 1 x physiological experiments - 1x anatomy/orthopaedics: anatomy of the living body	
Content	- Anatomy: muscles, nerve and blood supply, important regional structures of: neck, back, arms & shoulder, breast & abdomen, gluteal region & thigh, lower leg and feet - Orthopaedics: exploration of spinal column, hip joint, shoulder joint, different problems of hip and shoulder joint - Pathology: general overview of the pathologist's work, embryology, pathology of leg's & arm's development, osteoporosis, gout, fracture, plasmocytoma, osteosarcoma, arthrosis - Neurpathology: histology of different muscle diseases, spinal cord lesions, injured nerve roots and plexus - Traumatology: overview of different kinds of wounds and fractures	
Assesment	final oral exam (content: anatomy, orthopaedics, pathology, neuropathology, traumatology); participation in all seminars	
<b>3-HK Cardiovascular system</b>		<b>9 ECTS</b>
Subjects	anatomy, physiology, pharmacology, pathology, internal medicine (cardiology), (histology, microbiology, nuclear medicine, radiology, clinical	

	chemistry, virology, environmental medicine, psychosomatic medicine)
Organisation	4 days a week for 7 weeks (week 6-12), including lectures in the morning and practical trainings and seminars in the afternoon: - 2 x PBL (1h) Anatomy - 2 x PBL (1h) Internal Medicine - 1 x Histology lab (2h) - 3 x experiments in Physiology (2h) - 2 x dissection (2h) - 2 x Pathology lab - 1 x "internship" Nuclear Medicine(2h) - 1 x Pharmacology seminar (3h) - 1 x "internship" Intensive Care (circulation parameters) - 1 x seminar Internal Medicine
Content	- Anatomy: development of the heart, anatomy (macroscopy and histology) of the complete cardiovascular system (heart and great arteries / veins and the basic lymphatic system) - Physiology: physiology of the heart, including the importance of different ions, pressure-differences, pulses, understanding of the E.C.G. - Pharmacology: medication of the heart (cardiac glycosides, anti-arrhythmics, NO-donators, inhibitors of ACE, antagonists of the Angiotensin-II receptor, antagonists of calcium, potassium channel openers, lipid reducers, sympathetic block) - Pathology: valvular heart defects, heart attack and coronary heart diseases, aneurysm, malformations, arteriosclerosis, arteriolosclerosis, thrombosis and embolism - Internal medicine (Cardiology): diseases of heart and cardiovascular system (acquired valvular heart defects, cardiac insufficiency) cardiomyopathies, heart attack, coronary heart disease, thrombosis and pulmonary embolism, aortic disorder and dissection)
Assesment	final written examination (during 12th week) (content: Anatomy, Physiology, Pathology, Internal Medicine, Pharmacology) and written reports of the physiological experiments
<b>3-RNSP Radiology, nuclear medicine, radiotherapy and physics</b>	
	<b>1 ECTS</b>
Subjects	
Organisation	2 hours of lecture and visits to different wards (radiology: 1 seminar; nuclear medicine: lectures and 1 visit; radiotherapy: 1 visit)
Content	basics and general overview of radiology, nuclear medicine and radiotherapy (methods, instruments used....)
Assesment	final written exam at the end of the semester
<b>3-PATH Pathology</b>	
	<b>1,5 ECTS</b>
Subjects	
Organisation	9 hours of Lecture and two seminars (including demonstrations) (3h)
Content	general pathology
Assesment	participating in the seminars, final written exam
<b>3-KEPI Clinical epidemiology</b>	
	<b>1 ECTS</b>
Subjects	
Organisation	12 hours of lecture in the morning, 2 x practical training
Content	comprehension of statistical reasoning and its application in medicine
Assesment	final written exam, participation in 2 seminars
<b>3-PHA Pharmacology</b>	
	<b>2 ECTS</b>
Subjects	
Organisation	20 hours of lecture (beginning 4th week), 1 seminar (3h)
Content	Pharmacological basis of therapeutics, molecular, cellular and in-vivo Effects of therapeutic and toxic agents, Principles of drug absorption, metabolism, elimination
Assesment	participation in the seminar, final written exam

<b>3-HG Human genetics</b>		<b>2,5 ECTS</b>
Subjects		
Organisation	18 hours of lecture; two seminars	
Content	review on the different fields of medical genetics, including genetic counselling, molecular genetics and cytogenetics, presentation of widespread genetic disorders, ways to diagnosis; interviews with invited patients	
Assesment	final written exam, participation in the seminars	
<b>3-EBM Evidence based medicine</b>		<b>2 ECTS</b>
Subjects		
Organisation	18 hours of lecture (for 10 weeks), 4 practical trainings on the computer	
Content	basics of information systems in the hospital, the students learn how to work with data libraries and search engines, importance of evidence based medicine during the clinical routine	
Assesment	computer based exam; participation in all 4 practical trainings	
<b>3-HTRP How to read a paper</b>		<b>2 ECTS</b>

## Semester 4 (summer)

<b>4-IMM Haematopoetic system &amp; immunology</b>		<b>9 ECTS</b>
Subjects	clinical chemistry, immunology, pathology, biochemistry, internal medicine, paediatrics, anatomy, pharmacology, virology	
Organisation	6 weeks (week 3-9): lectures in the morning; experiments, seminars in the afternoon: <ul style="list-style-type: none"> <li>- 8 x practical training (each 4h): immunology</li> <li>- 3 x seminar: immunology</li> <li>- 3 x experiments (4h): clinical chemistry</li> <li>- 2 x working with the microscope: histology</li> <li>- 1 x seminar pharmacology</li> <li>- 1 x seminar and demonstration: pathology</li> </ul>	
Content	human immune system & haematopoetic system: it's different components and their functions, possible problems	
Assesment	Final oral exam, the mark will be influenced by results of small tests, which are written before the practical trainings (immunology); besides each student has to perform a presentation in one of the seminars	
<b>4-ATM Respiratory system</b>		<b>9 ECTS</b>
Subjects	anatomy, ENT, physiology, pharmacology, biochemistry, internal medicine, paediatrics, anesthesia	
Organisation	3 weeks (12th -14th week) during 3rd semester and 3 weeks (week1-3) during 4th semester including lectures in the morning and practical trainings and seminars in the afternoon: <ul style="list-style-type: none"> <li>- 1 x physical examination (4h)</li> <li>- 2 x dissection (2h)</li> <li>- 1 x Histology lab (2h)</li> <li>- 1 x Biochemistry experiment</li> <li>- 1x Pathology course</li> </ul>	
Content	<ul style="list-style-type: none"> <li>- Anatomy: thorax and respiratory muscles, diaphragm, nose including nasal cavities, larynx, trachea, lung, mechanics of respiration, topography of the mediastinum and great lymphatic stations</li> <li>- Histology: nasal cavity, trachea, lung</li> <li>- Physiology: respiratory function, ventilation (pressure and volume), exchange and transport of gases, laws of diffusion, blood gases and acid-/base- parameters, acid-base balance (importance, buffering, problems...), perfusion of the lung, regulation of respiration</li> <li>- Biochemistry: biochemical basics of respiration (e.g. structure and function of myo- and haemoglobin, buffering of acids and bases, oxidative phosphorylation...)</li> <li>- Clinical Chemistry: acidosis and alkalosis: symptoms, diagnosis, different reasons, base-excess; homeostasis of liquids, osmolality, osmolarity; reasons of Na, K and Ca – excess; reasons of deficiency of K</li> <li>- Pharmacology: regulation of the bronchial tonus: adrenergic receptors, agonists, muscarinic receptors, adenosin receptors, histamin, promethazin, leukotrienes, antitussive medication, medication for expectoration, glucocorticoids, therapy of asthma</li> <li>- Paediatrics: different reasons for respiratory distress of the newborn</li> <li>- Internal Medicine: diagnosis of lung's function, obstructive lung diseases</li> <li>- Pathology: differentiation of restrictive / obstructive lung diseases, chronic obstructive lung diseases, chronic bronchitis, emphysema of the lung, adult respiratory distress syndrome, chronic interstitial lung diseases</li> <li>- Anaesthesia: respiration during extreme situations (narcosis, ventilation, diving, hiking)</li> <li>- Nuclear Medicine: basics of scintigraphy (ventilation and perfusion), PET</li> </ul>	
Assesment	final written exam during 4th semester (content: Anatomy, Histology, Physiology, Biochemistry, Pathology, Clinical Chemistry, Paediatrics,	

	Pharmacology, Internal Medicine, Nuclear Medicine, Anaesthesia)	
<b>4-NES Nervous system</b>		<b>8 ECTS</b>
Subjects	anatomy, neuropathology, neuroradiology, neurosurgery, physiology, psychosomatics, neurology, neuropaediatrics, pharmacology, nuclear medicine, children's psychiatry	
Organisation	6 weeks (week 10 – 15): lectures in the morning, during the afternoon: - 14 afternoons: macroscopy and microscopy (demonstrations, dissections, working with the microscope) - 4 x PBL - 2 x physiological experiment - 1 x seminar physiology - 1 x neurological examination course	
Content	- Anatomy: histology and macroscopy of brain, structure and related function (including structure of the brain, the different systems and regions with their particular function), the different nuclei and the 12 cranial nerves, the central and peripheral nervous system, arteries and veins of the brain, the spinal cord, the different ascending and descending paths - Neuropathology: histology of different diseases of the nervous system: meningeoma, pathologies of the peripheral nerve, regeneration and remyelination, PBLiomyelitis, contusion of the cortex, Parkinson's disease, adenoma of the hypophysis, necrosis of the parenchyma and other diseases - Physiology: reflex arc, basal ganglia and their function, cerebellum and motor system, vegetative nervous system - Neurology: important neurological examination methods, information about the motoric systems and their failures after lesions of the cerebellum, basal ganglia and pyramidal tract, failures of brain function (e.g. aphasia, apraxia, neglect) other diseases of the nervous system and their diagnosis neurological surgery: different syndroms of failures of the spinal cord, reflexes, different kinds of bleedings in the brain, Morbus Parkinson	
Assesment	final written and oral exam, participation in all afternoon meetings	

## Semester 5 (winter)

<b>5-MIBI Microbiology, virology and hospital hygiene</b>		<b>6 ECTS</b>
Subjects	microbiology, virology, hospital hygiene and infection prophylaxis	
Organisation	5 lectures (microbiology) 10 lectures (virology) 5 x practical training (each 3 hours) (microbiology) 3 x seminar (each 3 h) (virology) 5 lectures (microbiology) 9 lectures (virology) 6 lectures (hospital hygiene) 5 x practical training (each 3 h) (microbiology) 1 x practical training (3 h) (virology) 2 x seminar (each 2 h) (hygiene) 4 x practical training (each 2 h) (hygiene)	
Content	The students will be introduced to the most common bacteria, parasites and viral species by lectures and practical courses in the laboratory. They will learn about disinfection and sterilisation	
Assesment	Regular attendance in all courses with required attendance, plus: Microbiology: final written exam + oral/practical examination Virology: final written exam Hygiene: oral/practical -examination	
<b>5-GI Gastrointestinal system</b>		<b>8 ECTS</b>
Subjects	anatomy, histology, ENT, pharmacology, pathology, biochemistry, internal medicine, virology, clinical chemistry, surgery, radiology, radiotherapy	
Organisation	4,5 days a week for 5 weeks, including practical trainings and seminars in the morning and lectures in the afternoon: - 6 x dissection course - 2 x pathology lab - 2 x PBL - 4 x histology lab - 1 seminar virology - 1 seminar Pharmacology - 1 clinical Chemistry Lab	
Content	<p>Anatomy: embryology of the gastrointestinal system; mouth (including teeth and tongue); temporomaxillary joint; macroscopy, histology, nerve and blood supply, topography and lymphatic system of: pharynx, oesophagus, stomach, small and large intestine, liver, gallbladder and biliary ducts, pancreas; peritoneal cavity</p> <p>Pharmakology: pharmacotherapy of motoric failures; gastric and duodenal ulcer, gastritis; reflux oesophagitis; pancreatitis; diarrhoea; ulcerative colitis, Crohn's disease; obstipation; nausea</p> <p>Pathology: different types of gastritis, gastric ulcer, different gastric carcinomas, different types of colitis, Crohn's disease, adenoma and carcinoma of the colon, different types of oesophagitis, Barrett metaplasia and carcinoma of the oesophagus, Sprue, acute and chronic pancreatitis, different general information (about grading, staging, adenoma-carcinoma-sequence)</p> <p>Internal medicine: upper gastrointestinal system (reflux oesophagitis, carcinoma of the oesophagus, diseases of motility, gastritis, gastric and duodenal ulcer, gastroscopy); lower gastrointestinal system (diarrhoea – Crohn's disease, ulcerative colitis, sprue, carcinoma of the colon, coloscopy); pancreas (acute and chronic pancreatitis, carcinoma of the pancreas, diagnostic methods); liver (biliary liver diseases, hepatitis, metabolic diseases, toxic liver diseases, diagnostic methods); biliary ducts (icterus, different inflammatory diseases, carcinoma); cirrhosis of the liver (ascites, oedema, portal hypertension, hepatocellular carcinoma)</p>	

	<p>Clinical chemistry: general pathobiochemistry and clinical-chemical diagnosis of the liver and gastrointestinal system; cardinal systems of liver diseases; hyperbilirubinaemia; laboratory diagnosis of the liver carcinoma and hepatitis</p> <p>Biochemistry: metabolism (postprandial and during starvation); nutrition, digestion and absorption (e.g. digestive juices, hormones and cytokines, absorption of proteins, carbohydrates, fat, essential fatty acids ...); acute reactions of the liver</p> <p>Virology: different types of hepatitis, viruses causing gastrointestinal problems</p>
Assesment	final examination (75% oral, 25% written)
<b>5-UROGO Urinary organs and Reproductive system</b>	
<b>8 ECTS</b>	
	<b>Urinary System</b>
Subjects	anatomy, urology, pharmacology, physiology, clinical chemistry, nuclear medicine, pathology, internal medicine, radiology
Organisation	week 12 – 15: lectures in the afternoon, during the morning: 2 x PBL, 2 x histology lab, 1 x clinical chemistry lab, 1 x pathology lab, 2 x dissection course
Content	<p>Anatomy &amp; histology: retroperitoneal space, kidney, ureter, urinary bladder, urethra, prostata and vesicula seminalis, embryology of the urinary system</p> <p>Pathology: kidney: maldevelopment, cysts, inflammatory diseases, problems with systemic diseases, circulatory problems, shrinking kidney, transplantas, neoplasia; ureter &amp; urethra: inflammatory diseases, maldevelopment, neoplasia, hydronephrosis; prostata: carcinoma, hyperplasia</p> <p>Physiology: regulation of the liquid and osmotic homoestasis, balance of Calcium and development of stones, clearance</p> <p>Clinical Chemistry: glomerular filtration, methods of clearance, urinary diagnosis, different types of nephritis, proteinurie, different crystals and stones</p> <p>Urology: urological diagnosis, main symptoms &amp; therapy; maldevelopment, inflammatory diseases, tumors, stones, hyperplasia of the prostata</p> <p>Internal Medicine: glomerular kidney diseases, acute and chronic failure of the kidney, vascular kidney diseases, disorders of the water, electrolyte and acid/base homoestasis</p> <p>Nuclear Medicine: methods for diagnosis of several diseases of the urinary system</p> <p>Radiology: diagnosis by imaging</p> <p>Pharmacology: diuretics</p>
Assesment	final written and oral/practical exam; participation in all labs etc., written record of the physiology lab
	<b>Reproductive Organs</b>
Subjects	anatomy, gynaecology, pathology, urology, radiology, radiotherapy
Organisation	<p>3,5 weeks: lectures in the afternoon (29), different courses with required attendance in the morning:</p> <p>7 hours practical training (Anatomy, Pathology, Urology, Gynaecology)</p> <p>2 x PBL (each 1 hour)</p> <p>3 hours examination course</p>
Content	The students will learn about the anatomy of the feminine and masculine reproductive organs. They will learn about different diseases and other disorders and how to treat them. The students will also practice with models how to examine a prostate, the feminine reproductive organs and the feminine breast.
Assesment	Final written and oral/practical exam; Participation in all courses with required attendance
<b>5-PSY Psychology and psychiatrics</b>	
<b>4 ECTS</b>	
Subjects	Psychology, Psychiatry, Children's Psychiatry, Pharmacology, Ethics, Palliative Medicine

Organisation	week 7-12: at mornings seminar (2h) (9 seminars of psychology, 1 ethics), lectures during the afternoon
Content	overview and history of the psychology, different psychiatric diseases (including their [pharmacological] therapy): depression, schizophrenia, dementia, ADHD, interviews with invited patients during the lectures
Assesment	final written exam, participation in all seminars

## Semester 6 (summer)

<b>6-ENDO Endocrinology</b>		<b>7 ECTS</b>
Subjects	anatomy, pharmacology and toxicology, clinical chemistry, biochemistry, pathology, internal medicine, paediatrics, nuclear medicine	
Organisation	3 weeks: lectures in the afternoon (24), different courses with required attendance in the morning: 4 x PBL (each 1 hour) 4 hours practical training (anatomy, pathology) 6 hours seminar (pharmacology and toxicology, clinical chemistry)	
Content	endocrine control circuits including the different organ systems, hormones and failures and their therapy; especially: diabetes, problems of the thyroid gland	
Assesment	final written exam; participation in all courses with required attendance	
<b>6-HAUT Skin</b>		<b>7 ECTS</b>
Subjects	anatomy, dermatology, plastic surgery, medical psychology histopathology, histology	
Organisation	week 1-3: - lectures in the afternoon - 2 x PBL - 1 x histology lab - 2 x histopathology lab - 1 x seminar plastic surgery	
Content	- Anatomy and histology of the skin (sense organs, glands, temperature regulation...) - Dermatology: different diseases of the skin (bullous dermatosis, psoriasis, exanthema, eczema, problems caused by UV-light, aging of the skin, tumors of the skin, disorders of the pigment - Histopathology: histology of the following disorders: tumors of the skin, inflammatory and other skin diseases (e.g. herpes infection) - Plastic Surgery: wound healing, different techniques of (skin-) transplantations	
Assesment	final written exam; participation in all meetings (see above), one short report during the seminar	
<b>6-KOM Sensory organs and communication</b>		<b>12 ECTS</b>
Subjects	anatomy; physics; ophthalmology; otorhinolaryngology; clinic for phoniatrics, paedaudiology and communication disorders	
Organisation	5 weeks: lectures (60) in the morning and courses with required attendance in the afternoon: - 4 x dissection course (each 1,5 h) (anatomy) - 2 x experiments (each meeting 3 hours) (physics) - 4 x practical training (each 0,75 h) (ophthalmology) - 4 x practical training (each 1,75 h) (otorhinolaryngology) - 1 x practical training (2,25 h) (paedaudiology)	
Content	the gross anatomy (including auditory and visual path and corresponding brain areas), histology, physiology/ function and problems/disorders of eye and ear. They will learn how to examine the ear and the eye. They will also learn the anatomy of the skull (some is a repetition of what they did in the course "Nervous System", some is new). In physics students learn about optics and acoustics	
Assesment	Regular attendance in all courses with required attendance. Written examination at the end of the course	
Physical Examination courses (not available for exchange students)		

**Examination (≅ First National Examination):** 10 OSPE stations and written MC exam

## Third cycle: Clinical semesters

### Semester 7 (winter)

<b>7-ARSO Occupational and Social Medicine, and Clinical Environment Medicine</b>		<b>5 ECTS</b>
Subjects		
Organisation	Lectures: 8 hours Seminars: 1 seminar and 1 exercise (ca. 4 hours each)	
Content	Lectures and Seminars: occupational medicine, occupational examination methods.	
Assesment	Regular attendance to the seminars and written examination at the end of the semester.	
<b>7-PALL Palliative and Pain Medicine</b>		<b>4 ECTS</b>
Subjects	palliative medicine, anaesthesia	
Organisation	2 weeks: 24 hours lecture in the morning and courses with required attendance in the afternoon: - 2 seminars (each 2 h) (anaesthesia) - 2 seminars (each 2 h) (palliative medicine)	
Content	patients with chronic pain: how to handle those patients, where the pain may come from, about the possibilities how to handle them. They also learn about patients who are at the end of their life: how to make them their last days and death easier. They discuss about "helping patients to die", helping them "while they are dying" and about palliative sedation.	
Assesment	Regular attendance in all courses with required attendance. Written examination at the end of the course.	
<b>7-REC Forensic medicine</b>		<b>4 ECTS</b>
Subjects		
Organisation	24 hours of lecture in the morning 1 practical course 6,5 h 1 Seminar 3 h	
Content	Survey of forensic medicine. The course takes place at the forensic center in Cologne.	
Assesment	Regular attendance in the practical courses. Written examination at the end of the course.	
<b>7-ALT Geriatric medicine</b>		<b>3 ECTS</b>
Subjects	general medicine, urology, occupational and social medicine	
Organisation	12 hours of lecture 3 seminars (each 2 hours) (one in all of the participating subjects) 2 practical courses (6 hours) in general medicine	
Content	Aging of men and the specialities / problems of older people in our society, at the working place and in medicine. During the practical course in general medicine, the students visit a geriatric center.	
Assesment	Regular attendance in all courses with required attendance. Written examination at the end of the course.	
<b>7-OUH Orthopaedics, Traumatology and Hand Surgery</b>		<b>5 ECTS</b>
Subjects	anatomy, orthopaedics, traumatology, hand's surgery, pathology	
Organisation	3 weeks: 55 hours of lecture in the morning and courses with required attendance in the afternoon: - 4 hours of case discussion PBL - 4 hours practical training	
Content	Lower arm including elbow, hand, lower leg including knee and foot: complete anatomy, fractures and other problems and their therapy	
Assesment	Regular attendance in all courses with required attendance. Written examination at the end of the course.	

<b>7-WAC Growth</b>		<b>5 ECTS</b>
Subjects	paediatrics, children's cardiology, anatomy, pathology, dermatology, PBLyclinic / surgery of dental, oral and, facial disorders, neuropathology, anaesthesia, children's intensive care	
Organisation	3,5 weeks: 45 hours of lecture; different courses with required attendance in the morning: 2 x PBL (each 1 hour) 4 x Practical training (9 h) (paediatrics, pathology, neuropathology, anaesthesia, ECG)	
Content	different aspects of growth, hereditary and other children's diseases, embryology and the development of a human being, evaluation of an ECG and medical check-up during the different stages of growth	
Assesment	Final written exam Participation in all courses with required attendance	
<b>7-HTWP How to write a paper</b>		<b>4 ECTS</b>

## Semester 8/9 (summer and winter)

The rotations and courses of the 8th/9th semester are listed as in our Medicine curriculum. In many subjects, it is possible for incoming exchange students to alter the length of the practical part individually\* \*\*.

The rotations are full time (8 h a day) and take place from Monday to Thursdays. Fridays is lecture day, as Wednesday in the afternoon as well.

Usually, these semesters take much longer, and the regularly scheduled exam for Blockpraktika is either in March for winter semester or in September for summer semester. This is very late for our incoming students, so we set an extra exam for Blockpraktika exclusively for incoming students. The exam is scheduled either in February/March for winter semester or in July/August for summer semester. The dates are subject to the length of Blockpraktika of all incoming students.

\*No longer than 3 weeks per rotation, and a maximum of 3 rotations of 3 weeks length during an academic year. If exchange students need more weeks of practice, they may organize extra weeks on their own, to be carried out during semester break only.

\*\* Internal medicine and surgery, a maximum of 3 clinics in internal medicine and a maximum of 3 clinics in surgery for 2 weeks each.

<b>D-LSUD-8/9-Med-KPK Clinical Pathological Conference</b>		<b>0,5 ECTS</b>
Subjects		
Organisation	students have to attend 2 clinical pathological conferences of their choice (organized by the Institute of Pathology)	
Content	discussion of oncological cases in certain fields of medicine (e.g. gastroenterology, ENT)	
Assesment	Regular attendance	
<b>D-LSUD-8/9-Med-PHA Clinical Pharmacology</b>		<b>1 ECTS</b>
Subjects		
Organisation	Lectures: 12 lectures Seminars: 4 seminars, each 2 hours	
Content	Lectures and Seminars: Principles of drug classification, therapy and medication. Surveillance of drug therapy, interaction and side effects. Discussion of case examples	
Assesment	Regular attendance to the seminars. MC test at the end of the semester.	
<b>D-LSUD-8/9-Med-INN Internal Medicine, practice and theory</b>		<b>8 ECTS</b>
Clinics	Med. Klinik I - Kardiologie, Angiologie u. internistische Intensivmedizin Med. Klinik II - Nephrologie, rheumatologische u.immunologische Erkrankungen Med. Klinik III - Gastroenterologie, Stoffwechselerkrankungen Med. Klinik IV - Onkologie, Hämatologie u. Stammzelltransplantation Med. Klinik V - Pneumologie u. internistische Intensivmedizin	
Organisation	Lectures: 21 lectures à 45 minutes. 45 additional lectures à 45 minutes during 7 <sup>th</sup> semester. Practical part: 4 weeks in two fields (2 weeks each) Please pick the two departments in the LA.	
Content	Lectures: relations of symptoms and diagnosis, cardiology, pulmonology, nephrology, immunology, gastroentereology, metabolic disorders, sonography and endoscopy, oncology, haematology and endocrinology; physical examination and history taking skills Practical part: practical experience (e.g. taking blood, taking history, examining patients)	
Assesment	Regular attendance to the practical part. MC test at the end of the semester in all 4 fields.	
<b>D-LSUD-8/9-Med-CHIR Surgery, practice and theory</b>		<b>6,5 ECTS</b>

Clinics	Allgemein-, Viszeral- und Transplantationschirurgie Gefäßchirurgie Mund-, Kiefer- und Gesichtschirurgie Neurochirurgie Plastische Chirurgie, Hand und Verbrennungschirurgie Thorax-, Herz- und Gefäßchirurgie Unfall- und Wiederherstellungschirurgie
Organisation	Lectures: 20 lectures à 45 minutes. 30 additional lectures à 45 minutes during 7 <sup>th</sup> semester. Practical part: 2 weeks. Please pick the department in the LA.
Content	Lectures: Systematic presentation of the field of surgery with special reference to abdominal, thoracic and vascular surgery and traumatology. Diagnosis and therapy of important surgical diseases with special regard to physical examination, interpretation of laboratory data and imaging techniques. Practical part: practical experience (e.g. taking blood, cleaning wounds, assisting in operations)
Assesment	Regular attendance to the practical part. MC test at the end of the semester.
<b>D-LSUD-8/9-Med-ORT Orthopaedics, practice</b>	
<b>1,5 ECTS</b>	
Subjects	
Organisation	Practical part: 1 week on ward
Content	Diagnosis and therapy of orthopaedic diseases, traumatology and rheumatism.
Assesment	Regular attendance
<b>D-LSUD-8/9-Med-KIN Paediatrics, practice and theory</b>	
<b>3 ECTS</b>	
Subjects	
Organisation	Lectures: 18 lectures Practical training of 1 week on a paediatric ward
Content	Lectures: Description of general paediatric diseases and therapies, paediatric intensive care, neuropaediatrics, paediatric cardiology, oncology, gastro-entereology, pulmonology and allergology, metabolic disorders in children, genetic examinations and analyses of chromosomes, history taking and clinical examination skills in relations of symptoms and diagnosis, including case presentations. Practical training: Practical experience in the field of paediatrics (e.g. taking history, examining children)
Assesment	Regular attendance to the practical part. MC test at the end of the semester.
<b>D-LSUD-8/9-Med-GYN Obstetrics and Gynaecology, practice and theory</b>	
<b>3 ECTS</b>	
Subjects	
Organisation	Lectures: 21 lectures Practical training: 1 week on a gynaecological ward.
Content	Lectures: Presentation of a small field of Gynaecology and Obstetrics in relations of symptoms and diagnosis. Please notice that most lectures in Gynaecology already took place during the 5th semester (course "reproductive organs") Practical training: Practical experience in gynaecological and obstetric examination skills (depending on ward vs. office) ward: e.g. taking blood, taking history, assisting in operations office: e.g. taking history, assisting gynaecological examinations, prevention of cancer
Assesment	Regular attendance to the practical part. MC test at the end of the semester.
<b>D-LSUD-8/9-Med-PSY Psychiatry, practice and theory</b>	
<b>6 ECTS</b>	
Clinics	Klinik für Psychiatrie, Psychotherapie und Psychosomatik Klinik für Psychiatrie, Psychosomatik und Psychotherapie des Kindes- und Jugendalters

Organisation	Lectures: 19 lectures Practical training: 2 weeks of practical training on a psychiatric ward. Please pick either children's or adults psychiatry in the LA.
Content	Lectures: Presentation of systematics and classification of psychopathological phenomena and psychiatric disorders (syndromes and diseases), diagnostic methods, prognoses, therapeutic strategies, prevention and rehabilitation, including case presentations. Please notice that many lectures in Psychiatry already took place during the 5th semester (course "Psychology and psychiatrics") Practical training: Practical experience (e.g. taking blood, taking history, assisting in operations, watching / doing neurological examinations)
Assesment	Regular attendance to the practical part. MC test at the end of the semester.
<b>D-LSUD-8/9-Med-NEU Neurology, practice and theory</b>	
<b>3 ECTS</b>	
Subjects	
Organisation	Lectures: 16 lectures Practical training: 2 weeks of practical training on a neurological ward.
Content	Lectures: Presentation of Cerebrovascular diseases of the peripheral and cranial nerves, muscle diseases, traumatic brain and spinal cord injuries, infections of the central nervous system, epilepsy, diseases of the nervous system, headache, sleep disorders and vertigo. Practical training: Practical experience (e.g. taking blood, taking history, assisting in operations, watching / doing neurological examinations)
Assesment	Regular attendance to the practical part. MC test at the end of the semester.
<b>D-LSUD-8/9-Med-HNO Otorhinolaryngology, practice</b>	
<b>1,5 ECTS</b>	
Subjects	
Organisation	Practical part: 1 week on ward
Content	Diagnosis and therapy in ENT
Assesment	Regular attendance
<b>D-LSUD-8/9-Med-AUG Ophtalmology, practice</b>	
<b>1,5 ECTS</b>	
Subjects	
Organisation	1 week practical training on an ophtalmological ward
Content	
Assesment	Regular attendance
<b>D-LSUD-8/9-Med-DER Dermatology, practice</b>	
<b>1,5 ECTS</b>	
Subjects	
Organisation	Lectures: 5 lectures 1 week practical training on a dermatological ward.
Content	Lectures: Presentation of a small field of Dermatology in relations of symptoms and diagnosis. Please notice that most lectures in Dermatology already took place during the 6th semester (course "Skin") Practical training: Practical experience (e.g. taking blood, taking history, examination of the skin)
Assesment	Regular attendance
<b>D-LSUD-8/9-Med-URO Urology, practice</b>	
<b>1,5 ECTS</b>	
Subjects	
Organisation	Lectures: 5 lectures 1 week practical training on an urological ward.
Content	Lectures: Presentation of a small field of Urology in relations of symptoms and diagnosis, case related description of general and specific manifestations of urologic diseases and principles of therapy. Please notice that most lectures in Urology already took place during the 5th semester (course "reproductive and urinary organs") Practical training: practical experience (e.g. taking blood, taking history, assisting in operations, watching / doing urological examinations)
Assesment	Regular attendance
<b>D-LSUD-8/9-Med-NOT Emergency Medicine, practice and theory</b>	
<b>4 ECTS</b>	

Subjects	
Organisation	Lectures: 16 lectures (Anaesthesiology, Intensive Care, Emergency Medicine) Practical training: 2 weeks of practical training on the accident and emergency unit, different seminars to the topic
Content	Practical training: Practical experience in emergency situations in different medical fields, seminars including advanced life support, arterial and venous puncture, crisis management, etc.
Assesment	Regular attendance to the practical part. MC test at the end of the semester.
<b>D-LSUD-8/9-Med-INT Intensive Care, practice and theory</b>	
<b>2,5 ECTS</b>	
Subjects	
Organisation	Lectures: 16 lectures (Anaesthesiology, Intensive Care, Emergency Medicine) 1 week of practical training on an intensive care unit.
Content	Practical training: Practical experience in intensive care as a part of anaesthesiology
Assesment	Regular attendance to the practical part. MC test at the end of the semester.
<b>D-LSUD-8/9-Med-ANA Anaesthesiology, practice and theory</b>	
<b>2,5 ECTS</b>	
Subjects	
Organisation	Lectures: 16 lectures (Anaesthesiology, Intensive Care, Emergency Medicine) 1 week of practical training in the field of Anaesthesiology.
Content	Lectures: Presentation of a small field of Anaesthesiology. Please notice that some lectures in Anaesthesiology already took place during the 7th semester (course "Palliative Medicine and Anaesthesiology/Pain Therapy") Practical training: Practical experience (e.g. watching and assisting in operations)
Assesment	Regular attendance to the practical part. MC test at the end of the semester.
<b>D-LSUD-8/9-Med-RAD Radiology, practice and theory</b>	
<b>3 ECTS</b>	
Subjects	
Organisation	Lectures: 7 lectures 1 week of practical training on a radiologic unit.
Content	Lectures: Presentation of a small field of radiology, imagistics and radiotherapy. Please notice that many lectures in Radiology already took place during the 3rd semester (course "Radiology, Nuclear Medicine & Radiotherapy") Practical training: Practical experience (e.g. taking blood, taking history, assisting in examinations and diagnosis)
Assesment	Regular attendance to the practical part. MC test at the end of the semester.
D-LSUD-8/9-Med-ALL General Medicine: practice and theory (2 weeks) <b>(not available for exchange students)</b>	

## Semester 10 (summer)

<b>10-ONK Oncology</b>		<b>6 ECTS</b>
Subjects	immunology; pharmacology; palliative medicine; history, ethics and theory of medicine; hygiene and environmental medicine; general medicine; psychiatry; pathology; neuropathology; biochemistry	
Organisation	48 hours of lecture and courses with required attendance in the morning: - 4 hours seminar (immunology, pharmacology, ethics, palliative medicine, general medicine)	
Content	Aging of men and the specialities / problems of older people in our society, at the working place and in medicine	
Assesment	Final written exam; Participation in all courses with required attendance	
<b>10-PUB Global and Public Health</b>		<b>2 ECTS</b>
Subjects		
Organisation	Lectures: 6 hours Seminars: 4 hours	
Content	Survey of public health topics, such as public health system in Germany and global health care	
Assesment	Regular attendance to the seminars and written examination at the end of the course.	
<b>10-PRE Prevention and Health Promotion</b>		<b>2 ECTS</b>
Subjects		
Organisation	Lectures: 1 lecture of 2 hours Seminars: 1 exercise (ca. 2 hours)	
Content	Survey of prevention and health promotion	
Assesment	Regular attendance to the seminars and written examination at the end of the course.	
<b>10-GTEM History, Theory and Ethics of Medicine</b>		<b>4 ECTS</b>
Subjects		
Organisation	Lectures: 12 hours of lecture Seminars: 23,5 hours of Seminars (6)	
Content	History, theory and ethics of medicine, divided into the different periods of history and life	
Assesment	Regular attendance to the seminars and written examination at the end of the course.	
<b>10-KKK Course of clinical competence</b>		<b>10 ECTS</b>
Subjects		
Organisation	Lectures: 41 hours Seminars: 1 case conferences (2 hours) and 1 seminar, 2 x Plenum	
Content	Case presentations, survey and discussion of differential diagnosis covering many fields of medicine	
Assesment	Regular attendance to the seminars, small written exams at the end of the case conferences.	
<b>10-NAT Rehabilitation, Physical Medicine and Naturopathy</b>		<b>6 ECTS</b>
Subjects		
Organisation	Lectures: 18 hours Seminars: 1 practical training (ca. 4 hours)	
Content	Survey and discussion of the methods and principles of naturopathy and rehabilitation	
Assesment	Regular attendance to the seminars and written examination at the end of the course.	

**Second National Examination:** written multiple choice test

## 4th cycle: Practical Year (6<sup>th</sup> year)

German Medical School requirements state, that a student must complete a practical year after five years of medical studies. This final year of medical studies consists of full-time clerkships of 16 weeks each in Internal Medicine, Surgery and one mandatory elective.

The practical year will broaden and improve both their medical and social horizon. Students will learn to deal with individual cases and they will carry out medical tasks under supervision. Participation at clinical meetings, discussions and conferences form another part of the training. Along with the duty on the ward goes a theoretical training.

The clerkships take place in the university hospital or in our academic teaching hospitals. You will find an overview and location of our academic teaching hospitals following this link: <http://www.medizin.rwth-aachen.de/go/id/vls>

We are aware 16 weeks is in many cases too long to meet the requirements at our partner universities. The slots incoming students choose can however be no shorter than 4 weeks. Please keep in mind: 20 ECTS for 16 weeks, hence, 5 ECTS for 4 weeks.

<b>Internal Medicine</b>	Credits:	20
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Code: D-LSUD-6-Med-PJI-601

Organisation: Full-time clinical clerkship during 16 weeks at the University Hospital or at a [teaching hospital](#) in the region.

<b>Surgery</b>	Credits:	20
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Code: D-LSUD-6-Med-PJC-602

Organisation: Full-time clinical clerkship during 16 weeks at the University Hospital or at a [teaching hospital](#) in the region.

<b>Mandatory elective</b>	Credits:	20
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Code: D-LSUD-6-Med-PJW-603

Organisation: Full-time clinical clerkship during 16 weeks at the University Hospital or at a [teaching hospital](#) in the region. List of electives available here: <http://www.medizin.rwth-aachen.de/cms/Medizin/Studium/Studiengaenge/Modellstudiengang-Medizin/Studienabschnitte/4-Studienabschnitt/~dudc/Formale-Vorgaben/>

General Medicine is not available for exchange students.

**Third National Examination:** oral and practical exam

## Doctoral thesis

A lot of students participate in scientific projects, write a dissertation about research work and pass an oral examination in order to gain the German academic postgraduate degree "Doktor der Medizin" (doctorate), although this is not necessary in order to become a physician and practice as such. This procedure might be also possible for students from our partner universities: during your stay at Aachen Medical Faculty you may already start your scientific work here, after you have finished your studies in your home country, you may return to complete your dissertation in Aachen and gain the German academic degree "Doktor der Medizin". Time and energy needed to do this can differ depending on the kind of doctoral thesis you choose. Details should be discussed with the responsible supervisor.

## AIXTRA skills lab

[AIXTRA is the "Aachen Interdisciplinary Training Center for Medical Education".](#)

In AIXTRA our students can acquire, train, and optimize clinical-practical skills. Furthermore, the Training Center continuously evaluates teaching methods and results among students. Afterwards findings are analyzed in accordance with scientific principles and the experiences are integrated into future trainings in order to attain higher efficiency. The Training Center is equipped with its own spaces for small group work, for example for practical classes, seminars, and problem-oriented teaching. Simulation and training models are also available to Faculty of Medicine lecturers in special training rooms with special media based on the needs of students. This makes the class more application oriented, interactive, and efficient. This enables something like video feedback to be optimally used in various learning situations.

Registration for courses is either online or in person upon arrival. There are no CP or ECTS for AIXTRA courses; however AIXTRA will issue a certificate of attendance upon student' request. AIXTRA courses will not be listed in the Transcript of Records issued by the Faculty.