

Course title	Clinical Analysis
Number of credits	3 ECTS
Teaching methods	10 lectures, 15 seminars, 20 labs
Course objectives	Objectives in this course are: 1. Taking case history in advanced level 2. Planning lab test and investigations 3. Forming initial diagnosis 4. Interpreting the results. 5. Informing patient about the disease, planned tests and possible treatment outcomes 6. Estimation of seriousness of patient's condition.
Course contents	Topics: Diagnostic value urine analysis. Potassium disturbances. Calcium-phosphate disturbances. Sodium-water disturbances. Acid-base balance disturbances. Kidney function tests. Diabetes mellitus. Endocrine disorders. Liver and cardiac enzymes.

Course title	Embryology
Number of credits	2 ECTS
Teaching methods	30 seminars
Course objectives	The aim of the course is to provide students with the general knowledge of the biology of development and processes that are crucial in the development of human being.
Course contents	During the course students will discuss the following aspects of human being development: 1. Formation of human embryo (weeks 1-3) and development of tissues, organs and body form (weeks 4-8). 2. The general features of fetal period (week 9 – till birth). 3. The development of particular systems including: branchial apparatus, respiratory, digestive, skeletal, muscular, urogenital, cardiovascular, nervous and integumentary. 4. The human birth defects.

Course title	Geriatrics
Number of credits	1 ECTS
Teaching methods	6 lectures, 9 seminars, 30 labs
Course objectives	Geriatrics patient care including assessment and approach to common disorders in multispecialty care including appropriate drug prescribing and interactions and adverse events.
Course contents	Cardiovascular, endocrine, gastrointestinal, hematologic, rheumatologic, Pulmonology, nephrology and psychotic disorders in geriatric patients including sleep, substance use and sexual dysfunction disorders. Preoperative, perioperative, palliative care and hospice.

Course title	Microbiology & virusology I + II
Number of credits	6 ECTS
Teaching methods	15 lectures, 15 seminars, 40 labs
Course objectives	<ol style="list-style-type: none"> 1. Gain familiarity with the vocabulary of bacteriology, mycology and virology 2. Know the conceptual difference between bacteria, viruses and fungus and between physiological and pathological microorganisms in human body 3. Understand the virulence factors and mechanisms of pathogenicity of microorganisms 4. Understand the mechanisms of immune response to different microorganisms, depending on structure and virulence factors 5. Know the general characteristics of infectious agents and diseases, which create the need for appropriate prophylaxis and treatment 6. Gain competency in collection and transport of clinical samples for microbiological examination 7. Gain competency in identifying the pathologic microorganisms (antigens, toxins, ect.) in clinical material obtained from human origins 8. Understand the mechanisms of susceptibility of bacteria and fungus to antimicrobial agents and resistance mechanisms of microorganisms to treatment

	<p>9. Understand the logic underlying the use of methods for the diagnosis of infectious diseases and have the competence to choose these methods appropriately</p> <p>10. Understand the application of genetic methods in diagnostics and therapy</p> <p>11. Gain competency in diagnosing of hospital infections and infection control</p>
<p>Course contents</p>	<p><u>Lectures:</u> Introduction to medical microbiology. Bacterial systematics. Structure of bacterial cells. Pathogenesis of bacterial infections Part I, II. Normal microbial flora of the human body. Role of the resident flora - beneficial effect of the normal flora. Host parasite relationship: antigenic structure of bacteria and immune response. Antibiotics and chemotherapy of bacterial, fungal and viral infections. Sensitivity to antibiotics and the mechanisms of resistance. Viruses – structure, classification, replication. Hepatitis viruses. HIV and AIDS. Infections in the immunocompromised patients. Nosocomial infections and hospital infection control. Epidemiology and prophylaxis of infectious diseases. Zoonotic infections. Antigens and antibodies in diagnostic bacteriology.</p> <p><u>Seminars:</u> Laboratory diagnosis of infectious diseases – technique of obtaining the specimens, transport to the laboratory. Methods of cultivation and identification of bacteria. Sterilisation and disinfection: definitions, controls. Systemic bacteriology: Gram-positive cocci . Systemic bacteriology: Gram-negative cocci. Systemic bacteriology: Gram-positive rods. <i>Mycobacteria</i>. Systemic bacteriology: anaerobic bacteria. Medically important <i>Clostridia</i> – prevention and treatment of diseases caused by: <i>Clostridium tetani</i>, <i>Clostridium botulinum</i>, <i>Clostridium perfringens</i> and <i>Clostridium difficile</i>. Sexually transmitted diseases <i>Treponema pallidum</i>. Enteric infections and food poisoning. Hospital infections: laboratory methods required for confirmation of hospital infection. Laboratory diagnosis and etiological agents of respiratory tract infections. Sexually transmitted diseases. Laboratory diagnosis of diseases caused by <i>Mycoplasma</i> and <i>Ureaplasma</i>, <i>Chlamydia</i>, <i>Rickettsia</i>. Fastidious bacteria. Course review.</p> <p><u>Labs:</u> Structure of bacterial cells. Microscopic observation of bacteria (light microscope and dark-field techniques). Bacterial staining techniques. The simple staining technique (crystal violet or methylene blue) and Gram-staining technique. Physiology of bacteria. Nutritional requirements and nutritional types. Cellular metabolism, culture media. Specimen processing in laboratory. Assay of surrounding microflora. Antibiotic susceptibility testing of different bacterial species. Gram-positive cocci (<i>Staphylococcus</i>, <i>Micrococcus</i>, <i>Streptococcus</i> and <i>Enterococcus</i>): methods for isolation, identification and antibiotic susceptibility testing. Gram-negative cocci (<i>Neisseria</i>, <i>Moraxella</i>) and <i>Haemophilus</i> spp. methods for isolation, identification and antibiotic susceptibility testing. <i>Mycobacteria</i> – laboratory diagnosis of tuberculosis. <i>Nocardia</i>. Spore-forming aerobic Gram-positive bacilli: <i>Bacillus</i>. Non spore forming Gram-positive rods (<i>Corynebacterium</i> spp., <i>Listeria</i> sp., <i>Erysipelotrix</i> sp.). Spore-forming Gram-positive anaerobic rods (<i>Clostridium</i> spp.). Non spore-forming anaerobes. <i>Actinomycetes</i> – laboratory diagnosis of infection caused by <i>Actinomyces</i>. <i>Spirochetes</i>. <i>Treponema pallidum</i>, <i>Leptospira</i> and <i>Borrelia</i>. Morphology and antigenic structure. Clinical manifestations and laboratory diagnosis of syphilis and gonorrhoea. <i>Enterobacteriaceae</i> I: general features. <i>Escherichia coli</i> - characteristic, antigenic structure, methods of identification. <i>Klebsiella</i> spp., <i>Proteus</i> spp., <i>Yersinia</i> spp. and others. Inflammatory diarrhea (determination of pathogens in fecal specimens). Urinary tract infections (UTI): pathogenesis, and general diagnostic approaches. <i>Enterobacteriaceae</i> II: <i>Salmonella</i> spp. and <i>Shigella</i> spp. - characteristics, clinical manifestations,</p>

	and laboratory diagnosis of diseases. Treatment and prevention. <i>Vibrio</i> , <i>Campylobacter</i> and <i>Helicobacter</i> - characteristics, clinical manifestations and diagnosis of infection. Determinations of bacterial resistance mechanisms. <i>Pseudomonas aeruginosa</i> , <i>Acinetobacter</i> spp. and other opportunistic Gram-negative "nonfermenters". <i>Bordetella</i> : morphology, growth requirements and diseases (diagnosis, treatment and prevention). <i>Legionella</i> – bacteriologic features, and diseases (legionnaires disease and Pontiac fever). <i>Chlamydia</i> – laboratory diagnosis, treatment and prevention. <i>Mycoplasma</i> and <i>Ureaplasma</i> – clinical manifestations, laboratory diagnosis and treatment. <i>Rickettsia</i> , <i>Ehrlichia</i> and <i>Coxiella</i> – clinical diseases. Basic mycology – laboratory diagnosis of systemic mycoses. Laboratory diagnosis of viral and prion diseases. Repetition of laboratory practice. Practical Exam.
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Course title	Neuroscience
Number of credits	5 ECTS
Teaching methods	30 lectures, 45 seminars
Course objectives	The Neuroscience programme aims towards an integrated modern understanding of the human nervous system, with the special emphasis on functional aspects of nervous system organization, as well as to have students to apply this knowledge to problems and case studies relevant to clinical neuroscience.
Course contents	<p>Course covers the following topics:</p> <ol style="list-style-type: none"> 1. Short overview and development of nervous system – norms and pathology. 2. Cell biology of neurons – structure and function. 3. Types of synapses and neurotransmitters. 4. Information processing – receptors and somatosensory system. 5. Motor system – motor centers and pathways. 6. Supraspinal control of movement. 7. Visual system. 8. Auditory system. Vestibular system. Chemical senses: smell and taste. 9. Autonomic (vegetative) nervous system. Central regulation of visceral functions. 10. Limbic system. Brainstem. Consciousness. Sleep. Brain cortex. Higher cortical functions. 11. Conditioned reflexes. Unconditioned reflexes. Physiology of language. Modern concepts in neurobiology.

Course title	Nuclear medicine
Number of credits	1 ECTS
Teaching methods	15 seminars
Course objectives	<p>The aim of the course is to demonstrate to the students how they can use the knowledge of basic sciences in the diagnosis and treatment of various diseases.</p> <p>Desired course outcomes. At the completion of the course students should understand that knowledge of the radiotracer metabolism in human body is the best method for analyzing the nuclear medicine studies rather than simply memorizing the representative illustrations.</p>
Course contents	<p>Nuclear physics; radioisotopes and radiochemicals; radiation detection and instrumentation; radiation safety and dosimetry.</p> <p>Examples of the most important radionuclide studies of the following systems: endocrine, nervous, cardiovascular, respiratory, urinary, digestive and skeletal. Radionuclide methods in diagnosis of inflammation and cancer. Basic informations concerning the use of radionuclides in therapy.</p>

Course title	Pathomorphology I
Number of credits	7 ECTS
Teaching methods	40 lectures, 10 seminars, 30 labs
Course objectives	Definition of the subject “Pathology”, its scope of interest and subspecialization. The knowledge of basic pathological conditions and processes (eg. Cell injury and death, adaptation, inflammation, neoplasia), their classifications in general terms as well in particular organ and system settings including grading and staging. Practical issues related to tissue sampling, submitting to the laboratory and processing as well as laboratory methods.
Course contents	<p>Methods in pathomorphology</p> <p>Cell injury and cell death</p> <p>Tissue growth, differentiation and adaptation</p> <p>Pathology of haemodynamic disorders</p> <p>General pathology of inflammation</p> <p>Patomorfologia chorób o podłożu autoimmunologicznym</p> <p>Zaburzenia genetyczne</p> <p>General pathology of neoplasia</p> <p>Pathology of the respiratory system</p> <p>Pathology of the cardiovascular system</p> <p>Pathology of the gastrointestinal system</p> <p>Pathology of liver, biliary tract and pancreas</p> <p>Pathology of the urinary system</p> <p>Pathology of the male genital system</p> <p>Pathology of breast</p> <p>Pathology of the female genital system</p> <p>Pathology of skin</p> <p>Pathology of musculo-skeletal system</p> <p>Pathology of the central nervous system</p> <p>Structure, function and pathology of blood and bone marrow</p> <p>Pathology of lymphatic system</p>

Course title	Pathomorphology II
Number of credits	6 ECTS
Teaching methods	30 lectures, 20 seminars, 40 labs
Course objectives	Teaching pathomorphology with special emphasizes on the histopathological aspects of clinical conditions. Comprehensive material review includes frequent issues present in US-MLE tests.
Course contents	<p>Pathology of autoimmune disorders</p> <p>Pathology of injury caused by physical and chemical factors as well as nutritional deficiencies</p> <p>Pathology of selected infectious disorders</p> <p>Pathology of AIDS</p> <p>Gestational pathology and genetic disorders</p> <p>Pathology of the head and neck</p> <p>Muscular dystrophies</p> <p>Renal glomerulopathies</p> <p>Pathology of the eye</p> <p>Pathology of the endocrine system</p> <p>Pathology of metabolic diseases</p> <p>Pathology of soft tissue tumors</p> <p>Cytological diagnostics of selected disorders</p> <p>Modern methods in pathology</p>

Course title	Pathophysiology
Number of credits	6 ECTS
Teaching methods	20 lectures, 15 seminars, 45 labs
Course objectives	Students should know the mechanisms, etiology, pathogenesis, signs and symptoms of cardiovascular, pulmonary, gastrointestinal, endocrine, hematologic, renal, cerebral and environmental diseases.

Course contents	<p><u>Lectures:</u></p> <ol style="list-style-type: none"> 1. Coronary artery disease 2. Chronic heart failure, cardiomyopathies 3. Hypertension, renovascular, endocrine hypertension 4. Respiratory failure 5. Chronic kidney disease 6. Anemias 7. Liver pathophysiology, jaundices 8. Diabetes mellitus 9. Basic of endocrinology. Hypothalamus, pituitary gland 10. Environmental factors influencing health <p><u>Laboratories:</u></p> <ol style="list-style-type: none"> 1. Valvular heart disease, chronic heart failure, cardiomyopathies 2. Coronary artery disease, acute coronary syndrome, peripheral artery disease, chronic venous disorders, vascular diseases, endo-, peri-myocarditis 3. Rhythm disorders. Electrocardiography. Sudden cardiac death 4. Pulmonary diseases: pneumonia, asthma, COPD, ARDS, pneumoconioses, pulmonary embolism 5. Renal diseases 6. Blood disorders 7. Gastrointestinal diseases: oesophagus, stomach, jejunum, ileum, colon, pancreas 8. Disorders of female and male reproductive tract. Disorders of the parathyroids & calcium metabolism . Osteoporosis. 9. Disorders of adrenals, thyroid diseases 10. Aging. Nervous system disorders
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Course title	Pharmacology I	
Number of credits	7 ECTS	
Teaching methods	20 lectures, 20 seminars, 40 labs	
Course objectives	Primary goal of pharmacology course is an acquirement of competence in description of pharmacological group of medicines with: mechanism of action, pharmacokinetic properties like absorption, distribution, metabolism and excretion from the biological systems, pharmacodynamic attributes like interactions of drugs with biological receptors and characteristic desired or toxic chemical's effect on the body to come to proper medical applications in individual disease.	
Course contents	Introduction to pharmacology. General pharmacodynamic and pharmacokinetic principles	Principles of pharmacology and toxicology. Essential parameters in pharmacokinetics. Biotransformation and elimination of drugs. Drugs interactions
	Principles of antimicrobial therapy	Chemotherapy of microbial diseases. Antimycobacterial drugs. Antiviral drugs. Treatment of HIV infection.
	Autacoids - characteristic of group	Pharmacological properties of salicylates and other nonsteroidal antiinflammatory drugs. Undesirable effects of NSAIDs Pharmacotherapy of rheumatism and gout
	Opioids analgesics	Addictive drugs and pharmacotherapy of drug abuse. Types of tolerance, physical dependence and withdrawal. Opioids analgesics Chronic pain
	Drugs affecting the Autonomic Nervous System	Cholinergic agonists and antagonists Adrenergic agonists and antagonists

	Drugs affecting the respiratory system	Pharmacotherapy of respiratory system infections. Current sight on therapy of asthma. Expectorans,cough suppressants and mucolytics. General pharmacology of drugs used in bronchoconstriction Chemotherapy of tuberculosis. Atypical pneumonia. Anaphylactic shock.
	Drugs of the hematopoietic system	Blood and hematopoietic agents Drugs effective in iron deficiency and other hypochromic anemia's. Blood coagulation and anticoagulant, antiplatelet drugs, thrombolytic drugs
	The management of ulcer disease and gastrointestinal tract disorders	Antiemetic drugs Pharmacotherapy of acid-peptic disorders Laxatives and therapy for constipation Endocrine pancreas regulation and biliary secretion
	Neurotransmitters of the Central Nervous System The psychotropic drugs.	Antipsychotics and antidepressants Anxiolytic and Hypnotic drugs Drugs used to treat epilepsy.
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	Medical genetics	Genomic basis of pharmacogenetics
	Origin substances in pharmacology	Dietary supplements. Herbal medicine

Course title	Pharmacology II	
Number of credits	6 ECTS	
Teaching methods	25 lectures, 20 seminars, 40 labs	
Course objectives	Objective of pharmacology 2 nd degree course with elementary of clinical pharmacology is the complete understanding of pharmacological processes associated with human cells and principles of drug interactions. After course students have to categorize medicines in appropriate therapeutic classes and connect mechanism of action and application of drugs. Moreover students have to keep in mind rational prescribing using the right medication at the right dose, using the right route and frequency of administration for patient with particularly attention in the life – threatening circumstances.	
Course contents	Treatment of Congestive Heart Failure	Clinical used of glycosides, diuretics and adrenolytics. Inotropic agents. Shock types and treatment
	Principles on the clinical antiarrhythmic therapy	Antiarrhythmics Proarrhythmic action of antiarrhythmic drugs
	Therapy of hypertension	ACE inhibitors □-adrenolytics. Diuretics in hypertension Calcium channel blocking agents AT1 receptor antagonists
	Drugs to treat Ischemic Heart Disease	Nitrates □-adrenolytics Calcium channel blocking agents
	Drug therapy for hypercholesterolemia	Pharmacotherapy of atherosclerosis Advances in pharmacology of dyslipidemia Statins and fibrates drug class,

		medical uses, medication side effects Ezetimibe – lipid lowering treatment Anorexiant drug therapy for obesity
	Drugs affecting renal function	Drugs and agents used to correct fluid electrolyte or acid-base balance disturbance Principles of toxicology. Treatment of poisoning or drug overdose
	Pharmacology of thyroid drugs	Thyroid and antithyroid drugs
	Carbohydrate metabolism disorders	Pharmacological management of diabetes mellitus Therapeutic uses of insulin and oral hypoglycemic drugs
	Calcium and phosphate regulation	Osteoporosis, hormone replacement therapy
	General anesthetics and hypnotic drugs	Types of anesthesia
	Drugs for neurodegenerative diseases.	Drugs effecting cerebral blood flow. Geriatric medicine. Nootropics. Pharmacological intervention in cerebral stroke
	Chemotherapy of neoplastic diseases	Principles of antineoplastic therapy

Course title	Physical Diagnosis
Number of credits	1 ECTS
Teaching methods	45 labs
Course objectives	Prepare the student to take a professional medical history from the patients and physical examination of the patients. Based on the signs and symptoms ability to diagnosed pathology of the organs and systems
Course contents	Medical history of the patient. Physical examination of the cardio vascular system, respiratory system, Gastrointestinal system, Urinary system, reproductive system, muscular-skeletal system

Course title	Physiology II
Number of credits	5 ECTS
Teaching methods	20 lectures, 15 seminars, 25 labs
Course objectives	The objectives of this course are to provide a clear and thorough practical working knowledge of the Physiology of major systems within the human body as well as to have students to apply this knowledge to problems and case studies relevant to clinical physiology.
Course contents	<p><u>Lectures and seminars</u> are devoted to the following topics:</p> <ol style="list-style-type: none"> 1. Metabolism 2. Thermoregulation 3. Gastrointestinal tract 4. Kidneys and urinary system 5. Hormones and endocrinal system 6. Reproductive system <p><u>Laboratories</u> serve to improve manual skills during following classes:</p> <ol style="list-style-type: none"> 1. Basal metabolic rate (BMR) measurement; body mass index (BMI) estimation; water balance. 2. Assessment of work load; physical work capacity; muscle fatigue, maximal oxygen consumption 3. Measurement of physical efficiency in humans; examination of coordination 4. Heart properties, factors influencing arterial blood pressure and heart rate. 5. Peripheral circulation – hyperemia, ischemia, dermographism 6. Respiration – vital capacity; air peak flow; voluntary apnea time. 7. Vision examination - acuity, astigmatism, color blindness, vision field, contrast vision, ambiguous figures, blind spot

	8. Hearing examination, tuning fork 9. Unconditioned reflexes in humans; skin sensation; deep sensation; reflex time measurement 10. Observation of spinal reflexes in frogs
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Course title	Polish VII
Number of credits	2 ECTS
Teaching methods	30 labs
Course objectives	After the course the student is able to: <ul style="list-style-type: none"> - name free time activities - understand bus/train timetable, buy bus/train tickets - ask and give directions - communicate at the post office - make phone calls – call a taxi, make phone orders and emergency calls - name different parts of the body - express pain, feeling unwell - buy medicines at the chemist`s - understand the dialogue between a pharmacist and a customer - ask simple doctor`s questions - understand patient`s complaints - express the events in the past tense
Course contents	The course contents comprises: <p>Grammar</p> <ul style="list-style-type: none"> - infinitives combined with other verbs, - common adverbs and their superlatives, - compound sentences of time. - inflection of the nouns - different endings for the adjectives accompanying the nouns - Instrumental and Locative with the expression: I`d like to be / become - conjugation in the past tense - personal pronouns <p>Lexis concerned with</p> <ul style="list-style-type: none"> - sports, hobbies, leisure - travelling - places in town - directions - telephone calls - parts of the human body - feeling unwell - feeling pain /different kinds of pain - shopping at the chemist`s - dialogue between a pharmacist and a customer - doctor`s questions - patient`s complaints - remedies for the complaints - specialists and the medical problems