

Learning outcomes

Faculty offering the field of study:		Faculty of Medicine
Field of study:		medicine
Level of qualification:		long-cycle studies
Level in the Polish Qualifications Framework:		level 7
Degree profile:		general academic
Degree awarded:		lekarz
Association of the field of study with scientific or artistic discipline(s) to which the learning outcomes refer:		Discipline: medicine (100%) Main discipline: medical sciences
Symbol	Upon completion of studies, the graduate achieves the following learning outcomes:	
KNOWLEDGE		
The graduate knows and understands:		
A.W1	terminology related to anatomy, histology and embryology in Polish and in English	
A.W2	structure of the human body in terms of topography (upper and lower limb, chest, abdomen, pelvis, back, neck, head) and function (osteoarticular, muscular, cardiovascular, respiratory, gastrointestinal, genitourinary systems, nervous system and sense organs, common integument)	
A.W3	topographic relationships between individual organs	
A.W4	basic cell structures and their functional specialisations	
A.W5	microarchitecture of tissues, extracellular matrix and organs	
A.W6	stages of human embryogenesis, the structure and function of foetal membranes and placenta, stages of development of individual organs and factors harmful for the development of the embryo and foetus (teratogenic factors)	
B.W1	water-electrolyte balance of biological systems	
B.W2	acid-base balance and the mechanisms of buffer actions, and their significance for the homeostasis of the organism	
B.W3	concepts of: solubility, osmotic pressure, isotonia, colloidal solutions, Gibbs-Donnan equilibrium	
B.W4	basic reactions of organic and inorganic compounds in water solutions	
B.W5	basic types of organic and inorganic reactions in aqueous solutions, the laws of physics governing fluid flow, and factors influencing vascular resistance	
B.W6	natural and artificial sources of ionising radiation and its effect on matter	
B.W7	physicochemical and molecular basis of the functioning of sense organs	
B.W8	physical basis of non-invasive imaging methods	
B.W9	physical basis of selected therapeutic techniques, including ultrasounds and irradiation	
B.W10	structure of simple organic compounds constituting macroparticles present in cells, extracellular matrix and body fluids	
B.W11	structure of lipids and polysaccharides, and their function in cellular and extracellular structures	
B.W12	primary, secondary, tertiary and quaternary structure of proteins; post-translational and functional modifications of proteins and their significance	
B.W13	function of nucleotides within the cell, the primary and secondary structure of DNA and RNA, and the structure of chromatin	
B.W14	functions of human genome, transcriptome and proteome, and methods of their analysis; processes of replication, repair and recombination of DNA, and transcription, translation, and degradation of DNA, RNA and proteins; concepts of gene expression and regulation	
B.W15	basic catabolic and anabolic pathways, methods of their regulation and influence of genetic and environmental factors	
B.W16	metabolic profiles of basic organs and systems	
B.W17	knowledge related to communication between cells and between cells and the extracellular matrix; intracellular signal transduction pathways, and examples of signal transduction disorders leading to the development of neoplasms and other diseases	

B.W18	processes of cell cycle, cell proliferation, differentiation and ageing, apoptosis and necrosis, and their significance for the functioning of the organism
B.W19	fundamental issues related to stem cells and their application in medicine
B.W20	fundamentals of stimulation and transduction in the nervous system and higher nervous activity, as well as the physiology of striated and smooth muscles, and the function of blood
B.W21	functions and regulation mechanisms of all human organs and systems, including the cardiovascular, respiratory, gastrointestinal and urinary systems and the skin, and their interrelationships
B.W22	course and regulation of reproductive functions in women and men
B.W23	mechanism of ageing of the organism
B.W24	basic quantitative parameters pertaining to the efficiency of individual organs and systems, including their normal range and demographic factors affecting their levels
B.W25	correlations between factors affecting the balance of biological processes and physiological and pathophysiological changes
B.W26	basic methods of information technology and biostatistics used in medicine, including medical databases, spreadsheets and basics of computer graphics
B.W27	basic methods of statistical analysis used in population studies and diagnostic assays
B.W28	possibilities of modern telemedicine as a tool supporting the practice of medicine
B.W29	principles of conducting research, observation and experimental in vitro studies contributing to advancements in medicine
C.W1	fundamental concepts in genetics
C.W2	phenomena of genetic linkage and interaction
C.W3	normal human karyotype and different types of sex determination
C.W4	structure of chromosomes and the molecular basis of mutagenesis
C.W5	principles of inheritance of a number of traits, inheritance of quantitative traits, independent assortment, and extranuclear inheritance
C.W6	genetic determinants of human blood groups and serological conflict in the Rh factor
C.W7	autosomal and heterosomal aberrations leading to diseases, including neoplasms, oncogenesis
C.W8	factors affecting the primary and secondary genetic balance of a population
C.W9	basics of diagnostic testing for gene and chromosomal mutations responsible for hereditary and acquired diseases, including neoplasms
C.W10	advantages and risks related to the presence of genetically modified organisms (GMO) in the ecosystem
C.W11	genetic mechanisms of developing drug resistance by microorganisms and neoplastic cells
C.W12	microorganisms, including pathogenic microorganisms and those present in the physiological flora
C.W13	epidemiology and geographic distribution of viral, bacterial, fungal and parasitic infections
C.W14	influence of abiotic and biotic (viruses, bacteria) environmental factors on the human organism and population and the routes of their penetration into the organism
C.W15	consequences of human exposure to various chemical and biological factors and the principles of preventive healthcare
C.W16	forms, stages of development and geographical distribution of selected parasitic fungi, protozoa, helminths and arthropods invasive to the human organism
C.W17	functioning of the parasite-host system and the most common symptoms of parasitic diseases
C.W18	knows the symptoms and routes of transmission of iatrogenic infections, and pathogens associated with changes within individual organs
C.W19	knows and understands the basics of microbiological and parasitological diagnostics
C.W20	has fundamental knowledge related to disinfection, sterilisation and aseptic procedures
C.W21	has fundamental knowledge related to the development and mechanism of action of the immune system, including specific and non-specific mechanisms of humoral and cell-mediated immunity
C.W22	describes the major histocompatibility complex
C.W23	knows types of hypersensitivity reactions and immune deficiency, and the basics of immunomodulation
C.W24	knows concepts related to cancer immunology
C.W25	defines the genetic basis for matching donors and recipients, and the basics of transplantation immunology
C.W26	knows terminology used in pathomorphology
C.W27	knows the basic mechanisms of cell and tissue damage
C.W28	defines the clinical course of specific and non-specific inflammations, and describes the processes of tissue and organ regeneration
C.W29	knows the definition and pathophysiology of shock, with special regard to the various causes of shock and multiple organ failure
C.W30	knows the aetiology of haemodynamic disorders and regressive and progressive changes

C.W31	knows concepts related to specific organ pathology, macroscopic and microscopic images and the clinical course of pathomorphological changes in individual organs
C.W32	describes the consequences of progressive pathological changes for topographically adjacent organs
C.W33	enumerates internal and external, modifiable and non-modifiable pathogenic factors
C.W34	enumerates the clinical manifestations of the most common diseases of individual organs and systems, metabolic diseases, and water-electrolyte and acid-base imbalance
C.W35	characterises individual groups of medicinal products
C.W36	knows the major mechanisms of drug action and the course of drug distribution in the organism depending on age
C.W37	describes the influence of disease processes on drug metabolism and elimination
C.W38	knows the fundamental principles of pharmacotherapy
C.W39	knows major adverse drug reactions, including those caused by drug interaction
C.W40	understands the problem of drug resistance, including multidrug resistance
C.W41	knows indications for genetic testing for the purposes of individualisation of pharmacotherapy
C.W42	knows basic directions of the development of medical treatment, particularly the possibilities of cell therapy, gene therapy and targeted therapy in selected diseases
C.W43	knows fundamental concepts in general toxicology
C.W44	knows drug groups whose overuse might lead to poisoning
C.W45	knows symptoms of the most common acute poisonings, including poisoning with alcohol, drugs, psychoactive substances, heavy metals and selected drug groups
C.W46	knows basic diagnostic procedures for poisoning
C.W47	influence of oxidative stress on cells and its significance in the pathogenesis of diseases and the processes of ageing
C.W48	consequences of deficiency and excess amount of vitamins and minerals in the organism
C.W49	enzymes involved in digestion, the mechanism of hydrochloric acid production in the stomach, the role of bile, the course of absorption of digestion end products
C.W50	consequences of poor nutrition, including long-term starvation, overconsumption of food, and eating an unbalanced diet; disorders of digestion and absorption of digestion end products
C.W51	mechanism of hormone action
D.W1	social dimension of health and illness, the impact of social environment (family, social relations network), social inequality and sociocultural differences on a person's health, the role of social stress in health-related and self-destructive behaviours
D.W2	social factors affecting human behaviour in health and illness, particularly of chronic character
D.W3	forms of violence, models explaining violence at home and in selected institutions, social determinants of different forms of violence, and the role of physicians in their identification
D.W4	significance of health, illness, disability and old age in relation to social attitudes, the social consequences of illness and disability, sociocultural barriers, the concept of health-related quality of life
D.W5	principles and methods of communication with a patient and his family serving to build a relationship based on empathy and trust
D.W6	significance of verbal and non-verbal communication, the issue of trust in interaction with patients
D.W7	psychosocial consequences of hospitalisation and chronic illness
D.W8	functioning of healthcare institutions and the social role of physicians
D.W9	basic psychological mechanisms related to human functioning in health and illness
D.W10	role of family in the treatment process
D.W11	issues related to adaptation to disease as a difficult situation, stages of adaptation to risk events and patient needs, and the process of dying and mourning
D.W12	role of stress in the aetiopathogenesis and course of disease, mechanisms of coping with stress
D.W13	mechanisms, objectives and methods of treatment of psychoactive substance dependence
D.W14	principles of health promotion, its objectives and aims, with particular reference to the role of elements of a healthy lifestyle
D.W15	techniques for motivating patients to shape own health-conscious behaviours and for informing patients about unfavourable prognosis
D.W16	fundamental ethical concepts, theories, principles and rules serving as the framework for the interpretation and analysis of moral dilemmas in medicine
D.W17	patient rights
D.W18	principles of team work
D.W19	cultural, ethnic and nationality-related determinants of human behaviour
D.W20	history of early medicine, medicine of the primitive society and ancient civilisations, and major aspects of mediaeval medicine
D.W21	characteristics and major achievements of contemporary medicine

D.W22	process of development of new medical disciplines and the achievements of distinguished representatives of Polish and world medicine
D.W23	principles of evidence-based medicine
E.W1	environmental and epidemiological determinants of the most common diseases
E.W2	principles of nutrition of healthy and ill children, including breastfeeding, preventive vaccinations, and preventive check-ups for children
E.W3	causes, symptoms, and principles of diagnosis and treatment of the most common childhood diseases: 1) rickets, tetany, seizures, 2) heart defects, myocarditis, endocarditis, pericarditis, cardiomyopathy, arrhythmias, heart failure, arterial hypertension, syncope, 3) acute and chronic upper and lower respiratory tract diseases, congenital disorders of the respiratory system, tuberculosis, cystic fibrosis, asthma, allergic rhinitis, urticaria, anaphylactic shock, angioedema, 4) anaemia, haemorrhagic diathesis, bone marrow failure, childhood cancer, including common solid tumours in children, 5) acute and chronic abdominal pain, vomiting, diarrhoea, constipation, gastrointestinal bleeding, ulcer diseases, non-specific bowel diseases, pancreatic disorders, cholestasis and liver diseases, other acquired diseases and congenital defects of the gastrointestinal tract, 6) urinary infections, congenital disorders of the urinary system, nephrotic syndrome, nephrolithiasis, acute and chronic renal failure, acute and chronic nephritis, systemic kidney diseases, urination disorders, vesicoureteral reflux, 7) growth disorders, thyroid and parathyroid diseases, adrenal diseases, diabetes, obesity, sexual maturation and gonadal function disorders, 8) infantile cerebral palsy, encephalitis and meningitis, epilepsy, 9) most common childhood infectious diseases, 10) genetic disorders, 11) connective tissue diseases, rheumatic fever, juvenile arthritis, systemic lupus, dermatomyositis
E.W4	concepts of: battered child syndrome, sexual abuse, mental impairment, behavioural disorders: psychosis, addiction, eating and excretion disorders in children
E.W5	basic methods of foetal diagnosis and therapy
E.W6	most common life-threatening emergencies in children and relevant management procedures
E.W7	causes, symptoms, complications, and principles of diagnosis and treatment of the most common internal diseases in adults: 1) cardiovascular diseases, including: ischaemic heart disease, heart defects, diseases of the myocardium, pericardium and endocardium, heart failure (acute and chronic), arterial and vascular diseases, primary and secondary arterial hypertension, pulmonary hypertension, 2) respiratory diseases, including: airway diseases, chronic obstructive pulmonary disease, bronchial asthma, bronchiectasis, cystic fibrosis, respiratory tract infections, interstitial disease of the lungs, pleura, mediastinum, obstructive and central sleep apnoea, respiratory failure (acute and chronic), cancer in the respiratory system, 3) gastrointestinal diseases, including: diseases of the oral cavity, oesophagus, stomach and duodenum, bowels, pancreas, liver, bile ducts and gallbladder, 4) endocrine diseases, including: diseases of the hypothalamus and pituitary gland, thyroid gland, parathyroid glands, adrenal cortex and medulla, ovaries and testes, neuroendocrine tumours, polyendocrine syndrome, different types of diabetes and metabolic syndrome: hypoglycaemia, obesity, dyslipidaemia,
	5) renal and urinary diseases, including: acute and chronic renal failure, glomerular and interstitial kidney diseases, renal cyst, nephrolithiasis, urinary tract infections, urinary tract cancers, particularly bladder and kidney cancer, 6) haematopoietic diseases, including: bone marrow aplasia, anaemia, granulocytopenia and agranulocytosis, thrombocytopenia, acute leukaemia, myeloproliferative and myelodysplastic-myeloproliferative neoplasms, myelodysplastic syndrome, mature B and T cell neoplasms, haemorrhagic diathesis, thrombophilia, life-threatening emergencies in haematology, blood disorders in diseases of other organs, 7) rheumatic diseases, including: connective tissue diseases, systemic vascular inflammation, spinal inflammatory arthritis, metabolic bone disease, particularly osteoporosis and degenerative joint disease, gout, 8) allergic diseases, including: anaphylaxis and anaphylactic shock, angioedema, 9) water-electrolyte and acid-base imbalance: dehydration and overhydration, electrolyte imbalance, acidosis and alkalosis

E.W8	course and symptoms of the ageing process and the principles of comprehensive geriatric assessment and interdisciplinary care of an older patient
E.W9	causes and specificity of the most common diseases of old age and the principles of managing common geriatric syndromes
E.W10	fundamental principles of pharmacotherapy in old age
E.W11	risks associated with hospitalisation in old age
E.W12	principles of elder care management and caregiver burden
E.W13	basic symptoms of neurological disorders
E.W14	causes, symptoms, and principles of diagnosis and treatment of the most common nervous system diseases, including: 1) headaches: migraine, tension headache, headache syndromes, trigeminal neuralgia, 2) cerebrovascular diseases, particularly stroke, 3) epilepsy, 4) nervous system infections, particularly meningitis, borreliosis, herpes simplex encephalitis, neurotransmission disorders, 5) dementia syndromes, particularly Alzheimer's disease, frontotemporal dementia, vascular dementia, and other dementia syndromes, 6) basal ganglia diseases, particularly Parkinson's disease, 7) demyelinating diseases, particularly multiple sclerosis, 8) neuromuscular diseases, particularly amyotrophic lateral sclerosis and sciatic neuralgia, 9) craniocerebral injuries, particularly cerebral concussion
E.W15	basic concepts related to the pathogenesis of mental disorders
E.W16	general symptomatology of mental disorders and principles of their categorisation into major classification systems
E.W17	symptoms and principles of diagnosis and treatment of the most common mental diseases, including: 1) schizophrenia, 2) affective and adjustment disorders, 3) eating disorders, 4) disorders related to the use of psychoactive substances, 5) sleep disorders
E.W18	principles of diagnosis and management of psychiatric emergencies, including the problem of suicides
E.W19	specificity of mental disorders and their treatment in children, adolescents and older adults
E.W20	symptoms of mental disorders in the course of somatic diseases, their management and influence on the course of primary disease and prognosis
E.W21	knowledge related to human sexuality and its most common disorders
E.W22	regulations pertaining to the protection of mental health with particular reference to the rules of admission to a psychiatric hospital
E.W23	environmental and epidemiological determinants of the most common cancers
E.W24	principles of early cancer diagnosis and screening tests in oncology
E.W25	possibilities of modern cancer treatment (including multimodality therapy), the prospects and adverse effects of cell and gene therapy
E.W26	principles of combination therapy in oncology, algorithms for diagnostic and treatment procedures in the most common cancers
E.W27	causes, symptoms, and principles of diagnosis and treatment in the most common palliative care problems, including: 1) symptomatic treatment of the most common somatic symptoms, 2) management of cancerous cachexia, prevention and treatment of bedsores, 3) the most common health emergencies in palliative medicine
E.W28	principles of palliative care of a terminal patient
E.W29	principles of pain management, including cancer-related and chronic pain
E.W30	concept of impairment and disability
E.W31	role of and methods used in medical rehabilitation
E.W32	basic principles of prevention and management of occupational exposure to dangerous and harmful factors
E.W33	principles of management of infectious diseases
E.W34	causes, symptoms, and principles of diagnosis, treatment and prevention of the most common bacterial, viral, parasitic and fungal diseases, including pneumococcal infections, viral hepatitis, acquired immune deficiency syndrome (AIDS), sepsis and nosocomial infections
E.W35	major features and environmental and epidemiological determinants of the most common human diseases of the skin

E.W36	causes, symptoms, and principles of diagnosis and treatment of the most common sexually-transmitted diseases
E.W37	causes, symptoms, and principles of diagnosis and treatment of the most common hereditary diseases
E.W38	causes, symptoms, and principles of diagnosis and treatment of the most common diseases and specific problems in family medicine practice
E.W39	types of biological material used in laboratory diagnostics and the principles of sample collection
E.W40	theoretical and practical principles of laboratory medicine
E.W41	possibilities and limitations of diagnostic tests in health emergencies
E.W42	indications for the implementation of therapeutic drug monitoring
E.W43	fundamental concepts in pharmacoeconomics
F.W1	causes, symptoms, and principles of diagnosis and treatment of the most common diseases requiring surgical intervention, with regard to the specificity of childhood diseases, particularly: 1) acute and chronic diseases of the abdominal cavity 2) thoracic diseases 3) limb and head diseases 4) bone fractures and organ injuries
F.W2	selected issues in paediatric surgery, including traumatology and otolaryngology, as well as acquired defects and diseases in children requiring surgical intervention
F.W3	principles of referring for and performing basic surgical procedures and invasive diagnostic and treatment procedures, as well as their most common complications
F.W4	principles of perioperative safety, preparation of patient for surgery, administration of general and local anaesthesia and patient-controlled sedation
F.W5	principles of postoperative treatment, including pain management and therapeutic drug monitoring
F.W6	indications for and principles of intensive medical care
F.W7	current guidelines pertaining to the cardiopulmonary resuscitation of newborns, children and adults
F.W8	principles of functioning of the national integrated emergency medical system
F.W9	knowledge related to female reproductive functions, their disorders and diagnostic and treatment procedures, particularly with respect to: 1) menstrual cycle and its disorders, 2) pregnancy, 3) physiological and pathological birth and puerperium, 4) gynaecological inflammations and cancers, 5) birth regulation, 6) menopause, 7) basic diagnostic methods and gynaecological procedures
F.W10	knowledge related to contemporary diagnostic imaging methods, particularly with respect to: 1) radiological symptomatology of individual diseases, 2) instrumental methods and imaging techniques used in treatment procedures, 3) indications, contraindications, and preparation of patients for different types of imaging tests as well as contraindications for the use of contrast agents
F.W11	knowledge related to eye diseases, particularly: 1) knows and understands the causes, symptoms, and principles of diagnosis and treatment of the most common eye diseases, 2) knows the ophthalmic complications of systemic diseases, their ophthalmic symptomatology and appropriate management, 3) has knowledge related to surgical procedures in selected eye diseases, 4) knows basic drug groups used in ophthalmology, their adverse effects and interactions, 5) knows systemically used drug groups which are associated with ophthalmic complications and contraindications, and explains their mechanisms
F.W12	knowledge related to laryngology, phoniatrics and audiology, including: 1) causes, clinical course, treatment methods, complications and prognosis in diseases of the ear, nose, nasal sinuses, oral cavity, throat and larynx, 2) diseases of the facial nerve and selected cranial structures, 3) principles of diagnosis and management of mechanical injuries of the ear, nose, larynx and pharynx, 4) principles of management of health emergencies in otolaryngology, particularly laryngeal dyspnoea, 5) principles of diagnosis and treatment of hearing, voice and speech disorders, 6) principles of diagnosis and treatment of head and neck cancers

F.W13	knows and understands the causes, symptoms, and principles of diagnosis and treatment of the most common central nervous system diseases in the scope of: 1) cerebral oedema and its complications, with particular reference to health emergencies, 2) other forms of intracranial tightness and its complications, 3) craniocerebral injuries, 4) vascular malformations in the central nervous system, 5) tumours of the central nervous system, 6) diseases of the spine and spinal cord
F.W14	basic knowledge related to transplant surgery, indications for transplantation of irreversibly damaged organs and tissues and related procedures
F.W15	principles of suspecting and diagnosing brain death
F.W16	algorithm for the management of individual stages of accidental and post-traumatic hypothermia
G.W1	methods for assessing the health status of an individual and a population, different classification systems of diseases and medical procedures
G.W2	methods for identifying and analysing risk factors, advantages and disadvantages of different types of epidemiological studies, and measures indicating the presence of cause-effect relationships
G.W3	epidemiology of infectious and chronic diseases, methods of their prevention at different stages of the natural history of disease, and the role of epidemiological supervision
G.W4	concept of public health, its aims and objectives, and the structure and organisation of the healthcare system at the national and global level, as well as the impact of economic conditions on the possibilities of health protection
G.W5	legal regulations pertaining to healthcare services provision, patient rights, fundamentals of medical practice and the functioning of self-governing bodies for physicians
G.W6	basic legal regulations pertaining to the organisation and financing of health care, national health insurance, and the principles of organisation of healthcare entities
G.W7	legal obligations of physicians with regard to the confirmation of death
G.W8	regulations and fundamental methods pertaining to medical experiments and conducting other research studies in medicine, including basic data analysis methods
G.W9	legal regulations pertaining to transplantation, artificial procreation, abortion, aesthetic surgery, palliative care, mental diseases
G.W10	basic regulations in pharmaceutical law
G.W11	principles of medical secrecy, medical record keeping, and criminal, civil and professional liability of physicians
G.W12	concept of sudden and violent death, and differences between the concepts of injury and damage
G.W13	legal regulations and medical procedures pertaining to examination of the corpse at the scene and medicolegal examination of the corpse
G.W14	principles of medicolegal diagnosis and opinion in cases related to infanticide and vehicular accident reconstruction
G.W15	principles of providing expert opinion in criminal cases
G.W16	principles of medicolegal opinion on: capability to participate in court proceedings, biological effects and health impairment
G.W17	concept of medical error, the most common causes of medical errors, and the principles of providing independent opinion about a medical error
G.W18	principles of collecting samples for toxicological and haemogenetic testing
SKILLS	
The graduate is able to:	
A.U1	operate an optical microscope, including the use of oil immersion techniques
A.U2	in optical or electron microscope images, identify histological structures of organs, tissues, cells and cellular structures, describe and interpret their structure, and interpret the relationships between their structure and function
A.U3	explain the anatomical basis of physical examination
A.U4	draw conclusions on relationships between anatomical structures on the basis of diagnostic examinations, particularly in the scope of radiology (plain x-ray imaging, imaging using contrast agents, computed tomography and nuclear magnetic resonance)
A.U5	use terminology related to anatomy, histology and embryology in speech and writing
B.U1	make practical use of the laws of physics for explaining the impact of external factors, such as temperature, acceleration, pressure, electromagnetic field and ionising radiation, on the organism and its elements
B.U2	evaluate the harmfulness of ionising radiation doses and follow the principles of radiation protection

B.U3	calculate molar and percent concentration; calculate the concentration of substances in single-ingredient and multi-ingredient isosmotic solutions
B.U4	calculate the solubility of inorganic compounds, determine the chemical basis of the solubility of organic compounds or its lack, and its practical application in dietetics and therapy
B.U5	calculate the pH of a solution and the impact of changes in pH on inorganic and organic compounds
B.U6	estimate the direction of biochemical processes depending on the energy status of cells
B.U7	perform simple function tests evaluating the human organism as a stable regulation system (exercise stress tests); interpret numerical data related to basic physiological variables
B.U8	make use of basic laboratory techniques, such as qualitative analysis, titration, colorimetry, pH-metry, chromatography, electrophoresis of proteins and nucleic acids
B.U9	operate simple measurement equipment and evaluate measurement accuracy
B.U10	make use of databases, including internet-based databases, and use available tools to find the information needed
B.U11	select relevant statistic tests, perform basic statistical analyses and use relevant methods of presenting their results; interpret the results of a metaanalysis and perform a survival analysis
B.U12	explain differences between a prospective and retrospective study, a randomised and case-control study, a case and experimental study, and rank them according to their reliability and quality of scientific proof
B.U13	design and carry out a simple research study, interpret its results and draw conclusions
C.U1	analyse genetic crosses and genealogical trees of human traits and diseases, and assess the risk of chromosomal abnormalities in offspring
C.U2	identify indications for prenatal testing
C.U3	decide on the need to perform cytogenetic and molecular tests
C.U4	perform morphometric measurements, analyse developmental profiles and make disease karyotypes
C.U5	estimate the risk of the occurrence of a given disease in offspring on the basis of family predispositions and influence of environmental factors
C.U6	estimate environmental risks and make use of basic methods for detecting the presence of harmful factors (biological and chemical) in the biosphere
C.U7	identify the most common human parasites on the basis of their structure, life cycles and disease symptoms
C.U8	make use of the antigen-antibody reaction in current modifications and techniques for the diagnosis of infectious, allergic, autoimmune, haematologic and neoplastic diseases
C.U9	prepare specimens and identify pathogens under the microscope
C.U10	interpret the results of microbiological tests
C.U11	correlate images of tissue and organ damage with the clinical symptoms of disease, medical history and results of laboratory determinations
C.U12	analyse reactive, immune and adaptive responses and regulatory disorders caused by aetiological factors
C.U13	perform simple pharmacokinetic calculations
C.U14	select drugs and their appropriate doses in order to correct pathological changes in the organism and in individual organs
C.U15	develop rational plans for infection, empirical and targeted chemotherapy
C.U16	correctly prepare notations of all forms of prescribed medicinal substances
C.U17	make use of pharmaceutical information sources and databases of medicinal products
C.U18	estimate toxicological risks in individual age groups and in renal and hepatic insufficiency, and prevent drug poisoning
C.U19	interpret the results of toxicological tests
C.U20	describe changes in the functioning of the organism in homeostatic imbalance, particularly with respect to its integrated response to physical activity, exposure to high and low temperatures, loss of blood or water, sudden verticalisation, transition from sleep to waking state
D.U1	in the treatment process, take into account the subjective needs and expectations of patients related to their sociocultural background
D.U2	identify and adequately respond to anti-health and self-destructive behaviours
D.U3	select a form of treatment which minimises the social consequences for the patient
D.U4	create an atmosphere of trust during the entire process of diagnosis and treatment
D.U5	communicate with adult and paediatric patients and their family using techniques of active listening and empathy expression and talk with patients about their life situation
D.U6	inform a patient about the purpose, course and potential risk of the proposed diagnostic and therapeutic procedures, and obtains the patient's informed consent
D.U7	engage patients in the diagnostic process
D.U8	inform the patient and their family about unfavourable prognosis

D.U9	give advice on following therapeutic recommendations and healthy lifestyle
D.U10	identify risk factors for violence, identify violence and reacts appropriately
D.U11	make use of basic motivational and supportive psychological interventions
D.U12	communicate with team members and provide them with constructive feedback and support
D.U13	follow ethical standards in professional practice
D.U14	identify the ethical dimension of medical decisions and differentiate between factual and normative aspects
D.U15	respect patient rights
D.U16	demonstrate responsibility for improving own professional qualifications and sharing knowledge
D.U17	critically analyse medical literature, including English-language literature, and draws conclusions on the basis of available literature
D.U18	communicate with patients in a foreign language at level B2+ of the Common European Framework of Reference for Languages
E.U1	perform a medical interview with an adult patient
E.U2	perform a medical interview with a child and their family
E.U3	perform a full and targeted physical examination of an adult patient
E.U4	perform a physical examination of a child at every age
E.U5	perform a mental status examination
E.U6	perform basic tests of hearing and field of view, and otoscopic examination
E.U7	evaluate a patient's general condition and level of consciousness and awareness
E.U8	evaluate neonatal status using the Apgar scale, assess newborn maturity and reflexes
E.U9	compare anthropometric and blood pressure measurement results against data in centile charts
E.U10	determine the stage of sexual maturity
E.U11	perform periodic health evaluation
E.U12	perform a differential diagnosis of the most common diseases in adults and children
E.U13	evaluate and describe the somatic and mental state of a patient
E.U14	identify life-threatening emergencies
E.U15	identify states after the use of alcohol, drugs and other stimulants
E.U16	plan diagnostic, treatment and prophylactic procedures
E.U17	perform an analysis of possible adverse effects of individual drugs and drug interactions
E.U18	in case of ineffectiveness of or contraindications to standard therapy, propose the individualization of currently accepted therapeutic guidelines and other treatment methods
E.U19	identify the symptoms of drug dependence and recommend treatment procedures
E.U20	refer patients for home and inpatient health care
E.U21	define states when the continued duration of life, functional status or the patient's preferences hinder medical treatment provided in accordance with guidelines for a given disease
E.U22	perform functional assessment of disabled patients
E.U23	suggest a program of rehabilitation in most common diseases
E.U24	interpret laboratory test results and identify the causes of deviations from the norm
E.U25	implement dietary treatment (including enteral and parenteral nutrition)
E.U26	plan treatment procedures in case of exposition to blood-borne infections
E.U27	refer patients for vaccinations
E.U28	collect samples for laboratory testing
E.U29	perform basic medical procedures, including: 1) taking temperature (core and peripheral) and pulse, non-invasive pressure measurement, 2) monitoring vital signs using a cardiac monitor, pulse oximeter, 3) spirometry testing, oxygen therapy, adjuvant and mechanical ventilation, 4) oropharyngeal airway insertion, 5) intravascular, intramuscular and subcutaneous injection, peripheral venous cannulation, peripheral blood draw, blood culture draw, arterial blood draw, arterialised capillary blood draw, 6) nasal, pharyngeal and skin swabbing, 7) urinary catheterisation in men and women, gastric probing, gastric lavage, enema, 8) standard resting electrocardiogram with interpretation, electrical cardioversion, defibrillation, 9) basic strip tests and blood glucose level tests

E.U30	provide assistance in performing the following medical procedures: a) transfusion of blood products and derivatives, b) pleural drainage, c) pericardiocentesis, d) paracentesis, e) lumbar puncture, f) fine needle biopsy, g) epidermal patch testing, h) intradermal and scarification testing, and interprets their results
E.U31	interpret the pharmaceutical characteristics of medicinal products and critically analyse drug advertisements
E.U32	plan specialist consultations
E.U33	implement basic treatment procedures in poisoning
E.U34	monitor the status of patients with chemical or drug poisoning
E.U35	assess bedsores and use appropriate wound dressing
E.U36	manage injuries (application of wound dressing, immobilisation, suturing)
E.U37	identify a patient's agony and confirm their death
E.U38	manage the medical records of a patient
F.U1	provide assistance during common surgical procedures, prepare the operating area and administer local anaesthesia to the surgical site
F.U2	operate basic surgical tools
F.U3	follow the principles of asepsis and antisepsis
F.U4	dress a simple wound, apply and change a sterile surgical dressing
F.U5	obtain a peripheral venous access
F.U6	examine the breasts, lymph nodes and thyroid glands, examine abdominal cavity for acute abdomen, and perform a digital rectal examination
F.U7	analyse the results of radiology tests with regard to the most common types of fractures, particularly long bone fractures
F.U8	perform a temporary limb immobilisation, select immobilisation methods applicable in selected clinical situations and monitor blood supply in the immobilised limb
F.U9	manage external bleeding
F.U10	perform basic resuscitation procedures using an automated external defibrillator, perform other emergency medical procedures and give first aid
F.U11	employ the currently accepted algorithm for advanced resuscitation procedures
F.U12	monitor postoperative patients on the basis of their vital signs
F.U13	identify subjective and objective symptoms indicating a pathological course of pregnancy (abnormal bleeding, abnormal uterine contractions)
F.U14	interpret the results of a physical examination of a pregnant woman (arterial blood pressure, maternal and foetal heart rate) and results of laboratory tests indicating a pathological course of pregnancy
F.U15	interpret cardiotocographic readings
F.U16	identify the onset of labour and protracted labour
F.U17	interpret subjective and objective symptoms during the puerperium
F.U18	determine recommendations, indications and contraindications related to the use of contraception
F.U19	perform ophthalmic screening tests
F.U20	identify ophthalmic conditions requiring immediate specialist care and give advanced first aid in cases of physical and chemical eye injury
F.U21	assess the status of unconscious patients using officially accepted international scales
F.U22	identify symptoms of increased intracranial pressure
F.U23	assess indications for suprapubic aspiration and participate in the procedure
F.U24	provide assistance in common urologic procedures (diagnostic and therapeutic endoscopy of the urinary system, lithotripsy, prostate puncture)
F.U25	perform basic laryngological tests of the ears, nose, throat and larynx
F.U26	perform basic hearing tests
G.U1	describe the demographic structure of a population and analyse its health problems on that basis
G.U2	collect information on the occurrence of risk factors for infectious and chronic diseases and plan prophylactic activities at different levels of preventive healthcare
G.U3	interpret the measures of frequency of occurrence of diseases and disabilities
G.U4	assess the epidemiological situation of diseases commonly occurring in Poland and worldwide
G.U5	instruct individuals receiving healthcare services in their fundamental rights and explain the legal basis for those services

G.U6	issue medical certificates to patients, their families and external entities
G.U7	during paediatric examination, identify behaviours and symptoms indicating the possibility of domestic violence on the child
G.U8	seek to avoid medical errors in own professional practice
G.U9	take blood for toxicological testing and secure samples for haemogenetic testing
SOCIAL COMPETENCE	
The graduate demonstrates:	
K_K01	ability to use objective sources of information;
K_K02	the ability accept the responsibility associated with decisions taken as part of professional activities, including self and other people's safety;
K_K03	ability to establish and maintain close and respectful relationships with patients and show understanding of worldview and cultural differences;
K_K04	ability to consider patients' well-being as a priority;
K_K05	ability to observe medical confidentiality and other patient rights;
K_K06	ability to implement the principles of professional collegueship and cooperation in a team of specialists, including representatives of other medical professions, also in a multicultural and multinational environment;
K_K07	ability to identify and recognise own limitations and to self-assess educational deficits and needs;
K_K08	ability to undertake procedures on the patient based on ethical principles, being aware of social conditions and limitations resulting from the disease;
K_K09	ability to promote health behaviours;
K_K10	ability to formulate opinions based on own assessment and observation;
K_K11	ability to formulate opinions pertaining to different aspects of professional activity.