

Educational & professional aims & scopes:

Introduction to the fundamentals of biochemistry and biophysics.

Lecture content:

Thermodynamics of biological processes. First and second thermodynamical principles and their applications to biological processes. Third thermodynamical principle, chemical potential and blood plasma diffusion. Nonequilibrium thermodynamics. Transport problems, membrane transport, filtration and ultrafiltration. Electric charge transport. Physical foundations of bioelectricity. Oxidation potential. Bioenergetics. Fundamentals of molecular biophysics. Basic types of biological macromolecules. Physical methods of investigation of macromolecules. Biophysics of the cell. The sense of hearing. The ear as information transmitting system, sound wave, the organs of speech. The sense of vision. Optical system, the eye, resolution, energetics of the process of vision, stereoscopic vision, eyeglasses. Biophysics of circulatory system. Blood viscosity: work, power and efficiency of the heart; hydrodynamics. Biophysics of the respiratory system: lung ventilation mechanism; work of the respiratory system; gas exchange

Laboratory practicals:

1. Concentration cell.
2. Electric potential investigation.
3. Membrane transport: diffusion, osmosis.
4. Pulfrich effect.
5. Lambert-Beer law.
6. Liquid flow investigation.
7. Sound velocity determination with acoustic resonance.
8. Hoppler's viscosimeter.
9. Surface tension.
10. Organic cell.
11. Specific heat determination.
12. Determination of the linear gamma radiation absorption coefficient.
13. Investigation of gamma radiation statistics.
14. Investigation of gamma radiation spectrum; contamination measurement.
15. Stokes viscosimeter.
16. Physical foundations of electrocardiography.
17. Microscope. Brownian motions.
18. Physical foundations of ultrasonography.
19. Lenses.
20. Optical determination of diffusion coefficient.

Recommended literature:

1. S. Miękiś, A. Hendrich, Wybrane zagadnienia z biofizyki, Volumed, Warszawa, 1998.
2. M. Bryszewska, W. Leyko, Biofizyka dla biologów, PWN, Warszawa, 1997.
3. F. Jaroszyk, Biofizyka, PZWL, Warszawa, 2001.
4. J. Terlecki, Ćwiczenia laboratoryjne z biofizyki, PZWL, Warszawa, 1999.
5. F. Jaroszyk, Biofizyka. Podręcznik dla studentów. PZWL Warszawa 2001.
6. M. Kapuściska, Fizyka. Podręcznik dla studentów farmacji, PZWL Warszawa 2001
7. B. Sędzia, Materiały do ćwiczeń z biofizyki i fizyki, PZWL Warszawa 2001

Human physiology

Educational & professional aims & scopes:

To learn student a skills in evaluation of results of basic analytical determinations performed in standard medical laboratory with urine, blood, enzymes, and spirometry.

Lectures & laboratory practicals content:

- 1.Fundamentals of neurophysiology.
- 2.Synaptic conductivity.
- 3.Physiology of smooth and skeletal muscles. Automatism and regulation of action of heart. Autonomic nervous system.
- 4.Rules of instinctively action of central nervous system. Control of movements and attitude of body.
- 5.Physiology of sense organs. Feeling and perception.
- 6.Higher action of central nervous system.
- 7.Brain and immunity - anatomical and functional basis of synergy of neuroendocrinology system with immunological system.
- 8.Thermoregulation and thermal states of organism according to set - point theory. Pathogenesis and importance of fever.
- 9.Biological clocks - formal characteristics and neurophysiological basis.
- 10.Importance of autonomic nervous system and limbic system in hormonal regulation. Function of hypothalamus in endocrinology. Control of neural part of hypophysis. Control of gland part of hypophysis. Hormones of hypophysis - mechanisms of influence. Loops of feedbacks mechanism. Endocrinic and secretion functions of pancreas.
- 11.Steroid hormones of adrenal gland - regulation of synthesis, secretion and mechanisms of influence. Stress and function of adrenal gland. Importance of adrenal gland estrogens and androgens. Axis hypothalamus - hypophysis - gonads. mechanisms of influence of ovary and testicle hormones. Pregnancy, childbirth, lactation -endocrinic and secretion specificity.
- 12.Hormones as modulators of ontogenesis of brain. Mediators of periodical changes. Mediators of changes cause by environment. Mediators of brain's development and sex differentiation of brain.
- 13.Blood. Composition of blood. Groups of blood. Morphology and physiology of erythrocytes and leucocytes. Platelets. Immunological mechanisms. Homeostasis.
- 14.Function of kidney and urine dismissing.
- 15.Normal and microscopy anatomy of the heart. Receptors. The heart - electric, mechanical and acoustic effects connected with work of myocardium and their utilization. Hemodynamic of heart. Mechanisms of regulation of hart's action.
- 16.Normal and microscopy anatomy of circulatory system. Vascular system. Mechanisms of regulation of blood pressure. Flow and regulation circulation of blood in brain, lungs, sceletal muscles, kidney, liver. Heart and circulatory system before birth. The impact of external factors on heart and circulatory system.
- 17.Structure and function of respiratory system - ventilation of lungs. Exchange of gases in lungs. Transport of gases. Diffusion of gases in tissues.
- 18.Regulation of respiration. Nervous control of respiration. Chemical control of respiration.
- 19.Metabolism. Physiology of gastrointestinal system.

Recommended literature:

- 1.W. Traczyk, A. Trzebski, Fizjologia człowieka z elementami fizjologii stosowanej i klinicznej, PZWL, Warszawa 1990.
- 2.W.F. Ganong, Podstawy fizjologii lekarskiej, PZWL, Warszawa 1994.
- 3.B. Sadowski, Fizjologiczne mechanizmy zachowania, PWN, Warszawa, 1997.
- 4.T. Górska, J. Grafowska, A. Zagrodzka, Mózg a zachowanie, PWN, Warszawa, 1997.
- 5.P.H. Lindsay, D.A. Norma, Procesy przetwarzania informacji u człowieka: wprowadzenie do psychologii, PWN, Warszawa 1984.
- 6.W. Ormowski, Nauka o chorobach wewnętrznych t.III, PZWL, Warszawa 1989.

Philosophy

Educational & professional aims & scopes:

Introduction to basic concepts of medical philosophy.

Lectures & practicals content:

The subject and aims of philosophy. A history of western philosophy. Concepts ph. and med. ph. The basic ontological categories. World and God in approach of the first Greek philosophers. The metaphysics of St. Thomas Aquinas. The essence of Cartesianism. The Kantian "Thing - in - Itself". Main trends in the contemporary philosophy of biology. Cognition and sensens. Cognition and truth. The freedom of the human individual. Existentialism in the contemporary ph. of man.

Recommended literature:

- 1.K. Ajdukiewicz, Główne kierunki filozofii, Warszawa 1983
- 2.F. Bacon, Novum Organum; Warszawa (frag.)
- 3.R. Descartes, Medytacje o pierwszej filozofii, Warszawa 1958 (frag.)
- 4.E. Gilson, Tomizm, Warszawa 1960 (frag.)
- 5.I. Kant, Krytyka czystego rozumu, Warszawa 1957 (frag.)
- 6.A. Kasia, Św. Augustyn, Warszawa 1960
- 7.G.O. La Mettrie, Człowiek - maszyna, Kraków 1953 (frag.)
- 8.J. Legowicz, Filozofia Grecji i Rzymu, Warszawa 1968
- 9.Platon: Uczta; Warszawa 1957
- 10.T. Płużański, Mounier, Warszawa 1697 (frag.)
- 11.Pr. zbiorowa: Kierunki filozofii współczesnej (skrypt UMK), Toruń 1988.
- 12.A. Sikora, Spotkanie z filozofią; wyd. do wyboru
- 13.B. Skarga B.: Comte; Warszawa 1967 (frag.)
- 14.B. Sztumska, J. Klimiński, Historia filozofii;
- 15.W. Szumowski, Historia medycyny; Warszawa 1994, (wskazane przez wykładowcę części)
- 16.W. Tatarkiewicz, Historia filozofii; wyd. do wyboru

Latin language

Educational & professional aims & scopes:

Aim of teaching is a passive knowledge of medical Latin within the scope of anatomy, chemical terms, medical terms, grammar issues concerning word-formation, reading and pronunciation of Latin terms with regard to contact with a physician.

Lectures & practicals content:

Explanation of grammar forms as background for translation from Polish into Latin and from Latin into Polish, translating of medical texts with numerous prescriptions.

Recommended literature:

- 1.S. Filipczak-Nowak, Z.Grech-Żmijewska , Lingua Latina ad usum medicinae studentium,
- 2.K. Karwowska, Podręczny słownik łac.-pol. i pol.-łac.
- 3.R.Rembieliński, Ilustrowany słownik międzynarodowego mianownictwa anatomicznego, PZWL, Warszawa, 2001.

Foreign language

Educational & professional aims & scopes:

Aim of teaching is to continue the student's training in general English (or German, or French according to student choice) skills, to show the student the differences between standard and specialised language structures, to teach the student the most important words and concepts in human biology and general medicine, to teach the student how to skim and scan medical and other specialised texts in English.

Lectures & practicals content:

Human body, systems, organs and cells, chemical processes in the body, growth and ageing, vitamins, minerals, nutrition and diet, disease and disease defences, doctor's surgery: talking to the patient, taking medical history, examining the patient, minor procedures, hospital: departments and wards, specialisation and specialists, stress, smoking, AIDS, ethical problems: euthanasia, genetic manipulation, giving antidepressants to small children, progress in medicine: transplants, cosmetic surgery, cloning. Additionally, each text is supplied with vocabulary and grammatical exercises.

Recommended literature:

English

- 1.Z. Grabarczyk, *Textbook of Medical English*, Wyd. AM w Bydgoszczy, 2001.
- 2.Z. Grabarczyk, *Medical English in Texts and Exercises*, Wyd. AM w Bydgoszczy, 2001.
- 3.Z. Grabarczyk, *Teksty medyczne w procesie nauczania języka angielskiego w szkole wyższej*,
- 4.Z. Grabarczyk, *Słownik angielsko-polski i polsko-angielski*, Wyd. AM w Bydgoszczy, 2001.

Library training

Educational & professional aims & scopes:

To familiarize students with library catalogs, lending systems and library facilities.

Recommended literature:

- 1.S. Dąbrowiecki, E. Janowicz, G. Malukiewicz-Wiśniewska, *Jak wyszukiwać i krytycznie oceniać naukowe publikacje medyczne*, Wyd. AM w Bydgoszczy, Bydgoszcz, 1996.
- 2.E. Janowicz, M. Kubiak, *Serwisy biblioteczno-informacyjne Biblioteki Głównej Akademii Medycznej im. L. Rydygiera w Bydgoszczy w 2002 r.*, *Wiadomości Akademickie* nr 7 2007, str. 11-13

Promotion of health & Health education

Educational & professional aims & scopes:

This is an introductory course to the discipline of statistics.

Lectures & practicals content:

Exponential and logarithmic functions. Functions of a single variable and their reverses. Derivative calculus for functions of a single and multiple variables. Integral calculus with applications. Linear and separable differential equations. Concepts of probability and statistics, sampling errors, confidence intervals, least squares and maximum likelihood.

Recommended literature:

- 1.A. Leksińska, W. Leksiński, W. Żakowski, *Rachunek różniczkowy i całkowy z zastosowaniami*, WSIP, Warszawa, 1986.
- 2.W. Kryszicki, L. Włodarski, *Analiza matematyczna w zadaniach*, PWN, Warszawa, 1993.
- 3.E. T. Whittaker, G. N. Watson, *A Course of Modern Analysis*, Cambridge University Press, 1996
- 4.W. A. Strauss, *Partial Differential Equations : An Introduction*, Wiley, New York, 1992.
- 5.R. J. Larsen, M. L. Marx, *An Introduction to Mathematical Statistics and Its Applications* (3rd Edition), Prentice Hall, London 2000.
- 6.C. R. Rao, H. Toutenburg, *Linear Models: Least Squares and Alternatives* (Springer Series in Statistics), Springer Verlag, Heidelberg, 1999.

Human anatomy

Educational & professional aims & scopes:

Information required to understand the connectedness of human structure and function. The control, integration, and regulation in the different body systems. Introduction to the clinical anatomy.

Lectures & practicals content:

Normal, topographical and clinical anatomy. General anatomic features of the human body. Axial and appendicular skeleton. Joints, muscles and motion. Location and subdivisions of the major body cavities. Heart and cardiovascular system. Lymphatic system plan. Structural plan of the respiratory, digestive urinary and reproductive systems. Serous membranes of the body: pleura, pericardium and peritoneum. Central, peripheral and autonomic nervous system. Receptors and special sensory organs. Centers and neural pathways. Vascular, neural and hormonal integration. Clinical aspects of the different body systems.

Recommended literature:

- 1.A. Bochenek, M. Reicher, Anatomia człowieka. PZWL, Warszawa, 1995.
- 2.J. Sobota, Atlas anatomii człowieka. Urban i Partner, Wrocław 1994.
- 3.P. Aleksandrowicz R. i wsp. Słownik mian anatomicznych. PZWL, Warszawa 1997.

Professional ethics & philosophy of nursing

Educational & professional aims & scopes:

Introduction to basic concepts of nursing ethics and philosophy.

Lectures & practicals content:

Moral obligation and ethical principles. Moral justification. Arguments for and against Professional Ethical Codes. Bioethics and Law. The slippery - slope argument in medical ethics. The principle of benevolence in medicine. Existence, freedom, justice and problems of medicine. Ethical aspects of genetic experiments. Euthanasia in the light of philosophy. Medical and moral problems of death and dying.

Recommended literature:

- 1.M. Ossowska, Podstawy nauki o moralności, Warszawa 1966.
- 2.T. Kielanowski (red.), Etyka i deontologia lekarska, Warszawa 1985.
- 3.K. Szewczyk, Etyka i deontologia lekarska, Kraków 1994.
- 4.R. Gillon, Etyka lekarska - problemy filozoficzne, Warszawa 1997.
- 5.Z. Szawarski, (red.), W kręgu życia i śmierci. Moralne problemy medycyny współczesnej, Warszawa 1987.
- 6.Z. Szawarski, A. Tulczyński, Moralne problemy leczenia noworodków obciążonych głębokimi i nieodwracalnymi wadami rozwojowymi, Polski Tygodnik Lekarski 1987,
- 7.S. Kornas, Współczesne eksperymenty medyczne w ocenie etyki katolickiej, Częstochowa 1986.
- 8.H. Bortnowska, (red.), Sens choroby, sens śmierci, sens życia, Kraków 1984.
- 9.A. Toynbee, Człowiek wobec śmierci, Warszawa 1973.
- 10.P. Ramsey, Pacjent jest osobą, Warszawa 1977.
- 11.H. Jonas, Prawo do śmierci, Etyka, 1988, 23.
- 12.T. Ślipko, Granice życia, Warszawa 1988.
- 13.A. Tulczyński, Polskie kodeksy deontologiczne, Warszawa 1975.
- 14.Kodeks etyki lekarskiej. Tekst jednolity ze zmianami uchwalonymi przez III Krajowy Zjazd Lekarzy, Warszawa 12 -14 grudnia 1993.
- 15.T. Jasudowicz, (opr.), Lekarz a prawa człowieka. W kręgu bioetyki, Toruń 1996.
- 16.T. Jasudowicz, (opr.), Bioetyka a prawa człowieka, Toruń 1997.
- 17.S. Tarnowski, F. Fryckowski E. (opr.), Problemy etyki. Wybór tekstów, Bydgoszcz 1993.

Histology

Educational & professional aims & scopes:

Teaching about normal structure of cells, tissues and organs, and fundamentals of human fetal development.

Lectures content:

Histological techniques in optical and electronic microscopy, and in histochemistry.
Organization of the cell: the structure and specialization of cell membranes, structure and role of cell organelles (mitochondria, Gorgi apparatus, endoplasmic reticulum, ribosomes, endosomal system, etc.), organization and function of the nucleus; cell cycle.
Structure and function of tissues (epithelial, connective, muscular, neural).
Composition and function of the blood and lymph; haematopoiesis.
Structure and functions of the organs in the alimentary, excretory, respiratory, reproductive, neural, circular and endocrine systems; structure of the skin and its products.
Fundamentals of gametogenesis, fertilization, stages of the human fetal growth.

Laboratory practicals content:

Practicing basic techniques of preparing and interpreting specimens with histochemical and immunochemical methods used in medical diagnostics; preparing and interpreting the blood smear.

Recommended literature:

1. W. Sawicki, Histologia, PZWL, Warszawa 2000.

Practice of medical analytics

Educational & professional aims & scopes:

To implement knowledge on registration of diagnostic commissions and its proper documentation; distribution of diagnostic samples and results of analyses; operating of computerized information systems in medical laboratories; operating of laboratory equipments; centrifugation of blood samples to gain serum or plasma; operating and maintenance of automated biochemical and haematological analyzers; preparation of reagents, solutions, buffers, dyes; writing and placing of commercial orders to medical equipment suppliers.

Laboratory practicals content:

Practicals will be performed in the fully active diagnostic medical laboratories. Education of practical skills to enable effective carrying out the currently approved biochemical, haematological, microbiological and analytical diagnostics protocols. The skills covering also training into the strict team cooperation in particular departments of health care system.

Recommended literature:

1. Skrypt wydany przez Katedrę i Zakład Diagnostyki Laboratoryjnej CM UMK.
2. J. Tomaszewski, Diagnostyka laboratoryjna, PZWL, Warszawa 2001.

Genetics

Educational & professional aims & scopes:

Teaching of genetic knowledge to make the students understand problems of contemporary medicine and preparing graduated persons to laboratory diagnostics in the field of cytogenetics.

Lectures & practicals contents:

Basic genetic definitions. Chemical content and structure of nucleic acids and types and functions of DNA. Replication, transcription and translation. Genetic code. Drugs acting in period of replication, transcription and translation. Chromosomes. Gene function regulation. Mutations. Mutagenic and cancerogenic factors. Genetic bases of oncogenesis. Cancer transformation. Defend mechanisms against cancers. Chromosome changes in cancer cells. Genetic susceptibilities to cancer. Immunological mechanisms. Antigen and antibodies. Humoral and cell immunity. Basic problems of transplantation. Mendels laws. Complementation. Pleiotropy. Expression and penetration. Types of sex determination. Recombinations. Chromosome mapping. Partial and total linking. Linkage with sex. Genetic engineering. Role of vectors. Gen cloning. Research and practical perspectives of genetic engineering and potential problems resulting from research. Genetics of blood groups. ABO, Rh and MNs groups. Serological conflict in ABO and Rh groups. Antigens of histocompatibility. Monogenic heritage of some normal and pathological man features. Autosomal and linked with X chromosome dominant and recessive heritage. Features related to sex. Farmacogenetics. Human karyotype. Methods of karyotype making. Lymphocyte culture. Chromosome banding. Autoradiography. Principles of karyotype description. Microscopic assessment of chromosomes. Structural and number aberrations of autosomes and diseases, when occur. Nondysjunction. Heterochromosomes aberrations. Sex definition and sex heritage. Sex chromosomes. Sex differentiation. Barr body. Lyon hypotesis. Diseases connected with heterochromosomes aberrations. Basic definitions and laws of evolution. Role of biological and geographical isolation in evolution. Biological evolution and social evolution. Population genetics. Mendel population and Hardy-Weinberg law. Factors influencing on frequency of different alleles in populations: noncasual matching of beings, mutations, selections and migrations. Genetic bases of species evolution. Behaviour genetics. Heritage of psychiatric diseases. Alcoholism - genetic conditions. Ekogenetics. Biological problems with enviroment. Influence of pollutions on humans and enviroment.

Recommended literature:

- 1.K. Boczkowski, Zarys genetyki medycznej, PZWL, Warszawa, 1990.
- 2.M. Connor, M. Ferguson-Smith, Medical genetics. Blackwell Science Ltd, 1997.
- 3.G. Drewna, Podstawy genetyki dla studentów i lekarzy. Volumed, 1995.

Isotope diagnostics - pathology

Educational & professional aims & scopes:

Introduction with theoretical bases Explanation basic rules of radiological protection. Recognition of methods of detection of radiation. Study of apparatuses in isotope diagnostics. Introduction to radioisotopes and radiopharmaceutics. Explanation of select problems from range of technics and analysis of results of select investigations

Lectures contents:

Historic introduction - explorations of physics and use them in medicine; development of nuclear medicine and isotope diagnostics.

Physical bases of isotope diagnostics: nucleus of atom, radioactivity, properties of radiation, absorption of radiation.

Influence radiation on organisms; basic problems of radiological protection.

Receiving and properties of radioactive isotopes; radiofarmaceutics.

Detection of radiation, gamma-camera (base of work), SPECT, PET.

Introduction to radioimmulnology and immunoradiometry.

Isotope diagnostics of organs and of tissues (radiofarmaceutics, methods), diagnostics of hearts and blood vascular system, lungs, central nervous system, thyroid, osseous system , liver, urinary system, alimentary system; isotope diagnostics in hematology.

Examples of uses of radioactive isotopes in therapy

Laboratory practicals contents:

Estimation of upper limit of energy of beta minus radiation.

Estimation of lineal coefficient of absorption of gamma radiation.

Investigation of statistics of gamma radiation.

Spectrum of gamma radiation.

Measurement of power of dose and pollution of surface in student" s laboratory.

Geiger - Miller counters.

Exercises in unknotting of assignments (radiation, dosimetry).

Influence of radiation on organism - reports and discussion on the ground of papers.

Tomography in medicine with special regard of SPECT.

Radon in buildings and urbanized areas.

Recommended literature:

- 1.B. Kędzia, Materiały do ćwiczeń z biofizyki i fizyki.
- 2.L. Królicki, Medycyna nuklearna
- 3.A. Piławski, Podstawy biofizyki. Podręcznik dla studentów medycyny.
- 4.A. Strzałkowski, Wstęp do fizyki jądra atomowego
- 5.H. Szydłowski, Pracownia fizyczna.

Parasitology – in Hospital

Educational & professional aims & scopes:

Teaching biology of parasites and clinical manifestations of infections and methods of diagnosis of parasitic diseases.

Lectures & practicals contents:

Host- parasite interaction as ecological phenomena. Evolution of host- parasite interaction. Origin of parasite life cycles. Medical meaning of human parasites. Natural cycles of chosen protozoa, nematodes and

cestodes and arthropods. Parasite invasion and invasive diseases. Diagnostics of parasitic diseases. Etiology, pathogenesis and clinical manifestations of parasitic diseases. Epidemiology and prevention from parasitic diseases. Alergogenic and toxic features of parasites. Parasites antigens. Taking and collection of material to parasitological assessment. Feces examinations. Direct methods (preparations in NaCl, in Lugol, thick smear, preparations permanently stained). Floating and sedimentation methods. Blood examination (thick smear, preparation of thick drop). Examination of cerebro-spinal fluid, saliva, bile, duodenal fluid, urine and genito-urinary secretions. Using material from biopsy and puncture to diagnose of parasitic diseases. Immunological methods.

Recommended literature:

- 1.G. Drewa, Laboratoryjna diagnostyka parazytologiczna, Akademia Medyczna 1990.
- 2.R. Kadłubowski, A. Kurnatowska, Zarys parazytologii lekarskiej, PZWL, Warszawa 1999

Microbiology

Educational & professional aims & scopes:

Acquaintance with the selected issues of general and detailed virology, bacteriology, mycology, infectious immunology. Presentation of the structure, physiology, metabolism, pathogenic mechanisms, genetics of microorganisms. Acquaintance with the killing effect of antibiotics, their subdividing, mechanisms of activity and resistance. The Quality Management System introduction. Acquiring with the infectious specimen

Lectures contents:

- 1.Issue and history of microbiology. Microbiology as a science. Microbiology sections.
- 2.Microorganisms and human. *Prokaryota* and *Eucaryota*.
- 3.Taxonomy: microorganisms classification and nomenclature.
- 4.General characteristics of microorganisms.
- 5.Techniques of microorganisms investigations.
- 6.Microorganisms morphology. The structures and their role.
- 7.Differentiation and identification of microorganisms.
- 8.Metabolism of microorganisms.
- 9.Microorganisms growth conditions. Culture - physical and chemical factors influence.
- 10.Virulence of microorganisms.
- 11.Genetics of microorganisms. Genetic variation. Recombination - transformation, transduction, conjugation.
- 12.Infectious immunology. The immune system. Definitions. Specific and non-specific defense mechanisms. Cells involved in immune system. Antigens and immunoglobulins - structure and diagnostics. The complement system. Cytokines. Immunological methods.
- 13.Bactericidal activity.
- 14.Antimicrobial drugs. Subdividing. Characteristics. Mechanisms of action.
- 15.Mechanisms of resistance to antibiotics - methods of detection.

Laboratory practicals contents:

- 1.OSH. Introduction to practices. Microorganisms observing methods. Microorganisms structure.
- 2.Preparation of specimens and principles of staining. Techniques of light microscopy. Anatomy structures important in microbiological identification and diagnostics.
- 3.Culturing methods. Culture media. Types of microbial growth in broth and solid media. Preparing of laboratory glassware and culture media, which are exploit in microbiological diagnostics - visit in the culture-preparing lab.
- 4.Physical and chemical factors affecting bacterial growth. Sterilization and disinfections. Hospital hygiene. Visit in The Central Sterilization SPSK AM.
- 5.Methods of antibiotic-susceptibility evaluation.
- 6.Determination of microbial sensitivities to antimicrobial agents and mechanisms of resistance to antibiotics. Interpretation of antibiograms.
- 7.Evaluation of antigenic properties. Serological tests in microbiological diagnostics.
- 8.Test
- 9.Bacterial metabolic features important in identification, testing methods. Differentiation of microorganisms. Visual methods and automated microbial detection systems.
10. Microbial variation and genetics. Virulence of microorganisms.
- 11.Micrococcaceae (general characteristics).
- 12.*Streptococcaceae*.

13. *Neisseriaceae*.

14. Test

Recommended literature:

- 1.D. Dzierżanowska, Antybiotykoterapia praktyczna, a - Medica Press, Bielsko-Biała, 2000.
- 2.W. Hryniewicz, J. Mészáros, Antybiotyki w profilaktyce i leczeniu zakażeń. PZWL, Warszawa, 2001.
- 3.L. Jabłoński (red.), Podstawy mikrobiologii lekarskiej. PZWL, Warszawa, 1986.
- 4.M. Kańtoch (red.), Materiał do bakteriologicznych, parazytologicznych i wirusologicznych badań diagnostycznych. PZWL, Warszawa, 1987.
- 5.M. Kańtoch, Wirusologia lekarska, PZWL, Warszawa, 1998.
- 6.S. Mickiewicz, (red.), Immunologia, PZWL, Warszawa, 1986.
- 7.G. Virella, Wydanie polskie pod redakcją P. Heczko, Mikrobiologia i choroby zakaźne Wydawnictwo Med. Urban & Partner, Wrocław, 2000.
- 8.M.L. Zaremba, J. Borowski, Podstawy mikrobiologii lekarskiej, PZWL, Warszawa, 1994.
- 9.M.L. Zaremba, J. Borowski, Mikrobiologia lekarska dla studentów medycyny, PZWL, Warszawa, 1997.

Nursing in the family

Educational & professional aims & scopes:

Knowledge on psychology of personality, emotions, cognitive and decisive processes, interpersonal communication with patients and health care staff. Understanding of social conditions and limitations related with diseases.

Lectures & seminars contents:

Theories and models of human communications. Harmony of interpersonal relations as the human health factor. Psychological determinants of health and disease. Rules of communications between

health care staff and patients. Psychological fundamentals of human teams activity. Psychological aspects of management. Psychosomatic diseases. Psychological problems of medical care to invalid, incurable and dying patients.

Recommended literature:

1. J. Koziński, Wstęp do psychologii, PZWL, Warszawa 2000.

Sociology

Educational & professional aims & scopes:

Provide knowledge about man, his environment, general health issues of the society and their cultural and social conditions. Provide knowledge about social, cultural conditions of different life styles and barriers in their prevention, therapy, rehabilitation, care and education.

Lectures & seminars contents:

Elementary concepts of sociology. Social definitions of health and illness. Social causes and social results of illness. Social structure and health, disablement and disabilities in society. Death as social phenomenon. Social analysis of medical professions.

Recommended literature:

- 1.J. Barański, E. Waszyński, A. Steciwki, Komunikowanie się lekarza z pacjentem.
- 2.M. Chodkowska, W. Piątkowski, Socjologia medycyny.
- 3.N. Goodman, Wstęp do socjologii, Poznań 1997.

- 4.M. Górecki, Hospicjum w służbie umierających, Wydawnictwo Akademickie Żak, Warszawa 2000.
- 5.H. Januszek, J. Sikora, Podstawy socjologii.
- 6.J. Karski, Promocja zdrowia.
- 7.Z. Kawczyńska - Butrym, Niepełnosprawność - specyfika pomocy społecznej, Biblioteka Pracownika Socjalnego, Katowice 1998.
- 8.Z. Kawczyńska - Butrym, Wsparcie w zdrowiu i chorobie, CMDNŚSzM, Warszawa 1994.
- 9.M. Latoszek, Zachowania i postawy wobec przemian ochrony zdrowia.
- 10.A. Ostrowska, J. Sikorka, Z. Sufit, Sytuacja ludzi niepełnosprawnych w Polsce.
- 11.A. Ostrowska, J. Sikorka, Syndrom niepełnosprawności w Polsce. Bariery integracji, Warszawa 1999.
- 12.A. Ostrowska, Styl życia a zdrowie, Warszawa 1999.
- 13.A. Ostrowska, Śmierć i umieranie, Warszawa 1991.
- 14.A. Ostrowska, Śmierć w doświadczeniu jednostki i społeczeństwa, IFiS PAN.
- 15.J. Polakowska - Kujawa (red.), Socjologia ogólna. Wybrane problemy.
- 16.M. Sokołowska, A. Ostrowska, Socjologia kalectwa i rehabilitacji.
- 17.M. Sokołowska, Socjologia a zdrowie.
- 18.J. Szczepański, Elementarne pojęcia socjologii, Warszawa 1976.
- 19.J. Szczepański, Socjologia. Rozwój problematyki i metod.
- 20.Szkice z socjologii medycyny. Praca zbiorowa.
- 21.B. Tobiasz - Adamczyk, Socjologia zdrowia i choroby.
- 22.J. Turowski, Duże struktury społeczne.
- 23.J. Turowski, Socjologia. Małe struktury społeczne.
- 24.Z. Tyszka, Socjologia rodziny.

Emergency medicine

Educational & professional aims & scopes:

Providing general knowledge on first aid and emergency, theory and exercising practical abilities in emergencies, general knowledge on resuscitation (BLS) and transport of the patient in emergency cases, advanced resuscitation methods for all age groups, knowledge on methods and procedures in cases of acute breathing problems in adults and children, principle procedures in treatment of haemorrhagic shock, general procedurs in cases of accute poisoning, general principles in cases of environmental threat: sereve odd, extremely high temperature and drowning, principles in

procedures in trauma, safety in emergency procedures, general and ethical principles in providing medical aid in emergency cases, diversity of proceding medical aid in catastrophies.

Lectures contents:

Medicine in catastrophies - a new field of medical science. Stages of medical aid. International cooperation in fighting. Principles in procedures at incidental and group events. Crisis managment in catastrophies situations. Psychological aspects of medical aid. Legal and ethical background in medicine of catastrophe. Managment of health protection in catastrophies, during the war and terrorist attack.

Laboratory practicals contents:

Estimation of resuscitation procedures. Recognition of basic life processes and functions during resuscitation and principles in providing first aid in patients after resusutation. Resuscitation in children. Presentation of devices appied in resuscition. Introduction to resuscitation by means diverse appliences: defibrillation, venous access, oxygen therapy. Difficulties and side effects in resuscitation (nausea, vomiting, impatency). Rib fracture - general procedures. principles of procedures in unconscious patients. New lateral position established. Procedures in chocking. Applying dressing materials an wonnds. Methods of external bleeding management. General procedures in cases of exteremity amputations. procedurs in trauma of joint. General procedures in fractures. General procedures in patient with suspected trauma of cervical vertebrates. Multiorgan trauma. General procedures in burns. General procedures in frostbite. General procedures in drowning. Restoring airways potency by means of medical appliances and without them. Induced ventilation in adults and children. General in cases of electrocution and thunder striking.

Recommended literature:

- 1.A. Chrzęszczewska, Bandażowanie, PZWL, Warszawa 2002.
- 2.D. M. Cline, O. J. Ma, J. Tintinalli, D. Gabor, J. Kellen, J. S. Stapczyński: Medycyna ratunkowa, Urban & Partner, 2003.
- 3.M.C. Colquhoun, A. J. Handley, T. R. Evans, pod red. J. Jakubaszki, ABC resuscytacji, Górnicki 2002.
- 4.K. Eibl - Eibesfeldt, pod red. E. Sobolewskiej, Opatrunki, Urban & Partner, 1999.
- 5.J. Jakubaszko, ABC postępowania w urazach, Górnicki 2003
- 6.J. Jakubaszko, Medycyna ratunkowa - nagłe zagrożenia pochodzenia wewnętrznego, Górnicki 2003
- 7.J. Jakubaszko, Ratownik medyczny, Górnicki 2003.
- 8.N. Mildebrand, Iniekcje, infuzje, pobieranie krwi, Urban&Partner 2001.
- 9.H. Plantz Scott, N. Jonatan, N. Adler, pod red. J. Jakubaszki: Medycyna ratunkowa, Urban & Partner 2000.
- 10.P. Sefrin, R. Schua, wydanie polski pod red. Z. Rybickiego: Postępowanie w nagłych przypadkach, Urban & Partner 2002.
- 11.G. R. Strange, W. R. Ahrens, R.W. Schafermeyer, W.C. Toepper, pod red. J. Jakubaszki: Medycyna ratunkowa wieku dziecięcego, Urban 2003.
- 12.J. Szajewski, R. Feldman, M. Glińska-Serwin, Leksykon ostrych zatruc, PZWL, Warszawa 2000.
- 13.I. Szajner-Mozart, E. Wójcie-Skierucha, Ostre zatrucia u dzieci, PZWL, Warszawa 2000
- 14.J.P. Wyatt, R.N. Illingworth, M.J. Clancy, P. Munro, C.E. Robertson, Podręcznik doraźnej pomocy medycznej, PZWL, Warszawa 2001.

Pharmacology

Educational & professional aims & scopes:

The aim of lectures and exercises is: to learn how drugs act: molecular mechanism of drugs action and receptor function, absorption and distribution of drugs, drugs elimination and pharmacokinetics, therapeutic and unwanted effects and contraindications to drugs use.

Lectures & practicals contents:

How drugs act general principles. Cell signaling system. Protein targets for drug binding. Receptor classification. Quantitative aspects of drug - receptor interactions. Agonist and antagonist concentration - effect curves. Partial agonist and concept of efficacy. Competitive and non -competitive antagonism. Receptor families: structure and signal transduction mechanism. Channel

- linked receptors. G - protein coupled receptors. Tyrosine kinase and guanylate cyclase linked receptors. Receptors that regulate gene transcription. Routes of drug administration. Absorbtion and distribution of drugs. Binding of drugs to plasma protein. Drug elimination and pharmacokinetics. Drug metabolism. Renal excretion of drugs and metabolites. Biliary excretion and enterohepatic circulation. Pharmacokinetics and single compartment model. Two -compartment model. Basic anatomy and physiology autonomic nervous system. Chemical mediators. Transmitters in the autonomic nervous system. Presynaptic and postsynaptic interaction. Mechanism of transmitter release. Cholinergic transmission. Nicotinic and muscarinic receptors. Drugs affecting nicotinic and muscarinic receptors. Noradrenergic transmission and classification of adrenoceptors. Drugs acting on adrenoceptors Drugs that affect noradrenaline synthesis. Drugs that affect noradrenaline release. Inhibitors of noradrenaline uptake.

Recommended literature:

- 1.G. Rajtar-Cynke (red.), Farmakologia, Wyd. CZELEJ, Lublin 2002.
- 2.A. Danysz, Z. Kleinrok (red.), Podstawy Farmakologii, Volumed, Wrocław 1996.
- 3.H.P. Rang, M.M. Dale, J.M. Ritter, (tłum. z j. ang. pod red. M. Wielosza), Farmakologia kliniczna, Wyd. CZELEJ, Lublin 2001.

Public health Epidemiology & hygiene

Educational & professional aims & scopes:

Introduction into rules of preventive activity of Health Service. Studying epidemiological investigations methods. Skill of evaluation of health in population state. Basic knowledge about protective vaccinations. Skill formation of recognizing state of wholesome threats, interpretation of investigations results of environmental factors.

Lectures contents:

1. Hygiene and epidemiology - subject place in medicine, methods of investigations
2. Organization of sanitary supervision. The role of IS in prevention and protection of health.
3. Hygiene of food.
4. Influence of environmental conditions into state of population health.
5. Hygiene of nourishment. Selected questions from hygiene.
6. Epidemiology and clinical medicine
7. Occupational diseases.
8. Protection of work environment and natural environment from ionizing radiation. Basic evaluation elements of influence the source of electromagnetic and non ionizing radiation on the natural environment and environment of work.
9. Epidemiology of non infectious diseases.
10. Epidemiology of infectious diseases. Selected questions from epidemiology of infectious diseases: fighting and prevention of infectious diseases widespreading oneself through exposition onto infect blood.
11. Epidemiology of diseases depending on smoking.
12. Epidemiology of infectious diseases. Epidemiology, fighting and prevention of AIDS.
13. Epidemiology of infectious diseases. Epidemiology of hospitals' contagions.
14. Epidemiology of cholera. Threat of cholera in Poland.
15. Behaviour of children and youth wholesome. Threat of pupil's health. Rules of teaching.

Laboratory practicals contents:

Hygiene of work.

1. Occupational diseases as an effect of harmful influence of environment of work: rules of recognizing and affirming of occupational diseases, the prevention of occupational diseases and fighting them.
2. Radiological protection from ionizing and electric radiation
3. Methodology of measuring professional harmfulnesses, hygienic norms and interpretation of the results of investigations: noise, lighting, the chemical harmfulness, dusts.

Communal hygiene:

1. Communal hygiene (of environment) - subject, targets.
2. Hygiene of water: the sanitary-epidemiological meaning of water, population needs of water, characteristic of the natural waters, sources and causes of natural waters contamination, sources and causes of the contamination of water in the process of distribution, ways of providing population with the water
3. Rules of holding of sanitary supervision concerning providing with the water and ways of conducting in this range.
4. The evaluation of quality of water: evaluation physical, chemical and microbiological features.
5. Reports from communal hygiene presented by students
6. Practices of microbiology of water. Making the basic rates of examining the water regarding to microbiology.
7. Exercises in Station of Fertilising of Water. Technology of fertilising of water for Bydgoszcz-city. Others examples technologies of fertilising of water in the country and in the World.
8. Practices the laboratory in chemical analysis of water: marking of colours, smell, pH, nitrites, chlorides alkalinity, hardness, iron, ammonia, oxygenity.

Hygiene of foods and nourishments

1. Hygiene of food: alimentary ingredients, their role in the organism and necessities the nutritional and caloric value of food, indexes of nutritious value
2. Hygiene of nourishment: norm of necessities, rule of setting menus, methods of nourishment evaluation, the control of nourishment quality.

3. The supervision on the food - the food legislation in Poland. Organization of supervision on the food and using subjects. Storage, transportation and storing of food
4. The healthy food in our legislation. The contaminating of the food.
5. Reports from hygiene of foods and nourishments presented by students.
6. Exercises in an institution of food's processing. Hygiene of food production, function of rooms.
7. The basic laboratory investigations of food: milk, fats, flour, honey, marking of vitamin C in foods, detecting of synthetic dyes
8. The alimentary poisoning, mushroom poisoning.

Recommended literature:

1. W. Jędrychowski, Epidemiologia. Wprowadzenie i metody badań, PZWL 1999.
2. L. Jabłoński, Epidemiologia, Folium 1999.
3. T. Maikowski (red.), Podstawy higieny, Volumed, Wrocław 1998.
4. J. Gawęcki, L. Hryniewiecki, Żywnienie człowieka. Podstawy nauki o żywieniu, PWN, Warszawa 1998.
5. B. Doroszyńska (red.), Wybrane zagadnienia z higieny i epidemiologii, skrypt AM w Bydgoszczy

History of nursing

Educational & professional aims & scopes:

History of pharmaceutics as a branch of history of nursing.

Lectures contents:

. Medicine in ancient civilizations. Mesopotamia, Egipt, China, India. Greek and Roman medicine. Hippocrates and Galen. Arabian medicine. Medicine in the Middle Ages. University medicine. Health and illness - evolution of the ideas. University medicine. The science of medication and its influence on the evolution of therapy. Contemporary medicine - Paracelsus, Andreas Vesalius, William Harvey.

Development of clinical medicine and similar specialities. Old and new Vienna school. Surgery of the 19th and beginning of the 20th century. History of fighting pain, antisepsis and aseptics. Development of clinical laboratory research. Medical microbiology. Radiology. History of Polish medicine of the 19th and beginning of the 20th century. Natural and non-conventional medicine - the past and the present.

Seminars contents:

History of nursing as a field of knowledge. References for the history of medicine, nursing and pharmaceutics. An outline of history of Polish nursing. Medicine and health care in most ancient civilizations, Mesopotamia, Egipt, India, China. Greek and Roman medicine. Hippocrates, Galen - reformer of medicine nad pharmacy. Medieval medicine and pharmaceutics. Arabian medicine; Avicenna. Teaching medicine at universities. Secular schools of medicine in Salerno and Montpellier. Cracow Academy. Polish physicians in the Middle Ages and Renaissance. Nicolaus Copernicus - physician and astronomer. History of hospitalization - from temple to a modern center of science and therapy. The science of medication and its influence on the evolution of therapy. Paracelsus - development of chemiatrics. Emergence of preclinical sciences. Preclinical sciences in Poland. Medicine and surgery of the 19th and beginning of the 20th century. History of fighting pain, antisepsis and aseptics. Medical microbiology - Louis Pasteur, Robert Koch, Odo Bujwid. Development of basic and laboratory clinical research. Progress in medicine and chemistry. Radiology - a new diagnostic method. Maria Skłodowska-Curie. History of Polish medicine of the 19th and beginning of the 20th century. Outstanding Polish chemists and biochemists. Natural and non-conventional medicine - the past and the present.

Recommended literature:

1. T. Brzeziński (red), Historia medycyny, Warszawa 2000.
2. R. Rembieniński, B. Kuźnicka, Historia farmacji, Warszawa 1987.
3. W. Seyda, Dzieje medycyny w zarysie, Warszawa 1974.
4. W. Szumowski, Historia medycyny filozoficznie ujęta, Warszawa 1994.