

GENERAL MEDICINE

SYLLABI OF THE COURSES OFFERED TO EXCHANGE STUDENTS

YEAR 1 / SEMESTER 1

aVLAN0121s Anatomy I - seminar

Faculty of Medicine

autumn

Extent and Intensity

0/2/0. 3 credit(s). Type of Completion: z (credit).

Supervisor

prof. RNDr. Petr Dubový, CSc.

Department of Anatomy - Theoretical Departments - Faculty of Medicine

Contact Person: prof. RNDr. Petr Dubový, CSc.

Course objectives

At the end of the course students should be able to:

1. Name all parts of the human skeleton including the detailed relief.
2. Describe correctly joints of the bones.
3. Describe the movements occurring at each joint.
4. Characterize the newborn skull.
5. Distinguish the male and female skull and pelvis.
6. Identify individual muscles of the human body, discuss their attachments and innervations.
7. Define actions of individual muscles and muscular groups.
8. Define the components of the major organ systems (digestive, respiratory, urinary, and male genital)
9. Explain the morphology of the organs
10. Create apprehension about position and spatial relationships of particular organs and organ systems

Learning outcomes

At the end of the course students should be able to name all parts of the human skeleton, describe correctly joints and movements occurring at each joint, identify individual muscles of the human body. Define the components of the major organ systems and create apprehension about position and spatial relationships of particular organs and organ systems.

Syllabus

- 1. Skeleton of the spine and thorax (vertebrae, sacrum, coccyx, ribs, sternum). Description of x-ray pictures.
- 2. Skeleton of the upper extremity. Description of x-ray pictures.

- 3. Skeleton of the lower extremity. Description of x-ray pictures.
- 4. Bones of the neurocranium. Description of x-ray pictures.
- 5. Bones of the splanchnocranium. Skull. Description of x-ray pictures.
- 6. Joints of the spine, thorax and skull. Joints of the upper limb (art. humeri et cubiti).
- 7. Joints of the upper and lower limbs. Pelvis. Pelvic planes.
- 8. Muscles of the back and shoulder.
- 9. Muscles of the upper and lower extremity.
- 10. Muscles of the head and neck. Oral cavity (incl. tongue and salivary glands), pharynx, oesophagus, stomach, small and large intestine. Description of x-ray pictures.
- 11. Muscles of the abdomen. Liver, gall bladder, spleen, pancreas. Peritoneal cavity. Description of x-ray pictures.
- 12. Preparation for the dissection: demonstration of the regions and structures of the back and extremities (including vessels and nerves). 13. Dissection I. (dissection of the back, upper and lower extremities).
- 14. Muscles of the thorax. External nose, nasal cavity proper, larynx, bronchi, lungs, thyroid gland. Description of x-ray pictures.

Literature

required literature

- DRAKE, Richard L., Wayne VOGL and Adam W. M. MITCHELL. *Gray's anatomy for students*. Third edition. Philadelphia, Pa.: Churchill Livingstone, 2015. xxv, 1161. ISBN 9780702051319.
- DUBOVÝ, Petr. *Gross anatomy and structure of the human nervous system. Part I. Surface anatomy and structural arrangement of the central nervous system*. 2. dotisk 3. vyd. Brno: Masarykova univerzita, 2016. 92 pp. ISBN 978-80-210-6125-5.

recommended literature

- Anne M. Gilroy, Brian R. MacPherson (eds.) *Atlas of Anatomy*, 3rd Edition, 2016, Thieme Medical Publishers, Inc. ISBN: 9781626232525
- KACHLÍK, David and Ondřej VOLNÝ. *Memorix anatomy : comprehensive book of human anatomy in English and Latin*. Illustrated by Radovan Hudák - Jan Balko - Simona Felšňová - Šárka Zaváza. 1st edition. Praha: Triton, 2015. xvii, 610. ISBN 9788073879501.
- Sobotta *Atlas of Anatomy, Package*, 16th ed., English/Latin, 16th Edition. ISBN 9780702052682

Teaching methods

Practice with the human anatomical specimens

Assessment methods

Completion of the subject is assessed by the course-unit credit. A precondition for obtaining the course-unit credit is 95% attendance at the seminars (1 non-attendance tolerated).

Language of instruction

English

aVLAN0121p Anatomy I - lecture**Faculty of Medicine**

autumn

Extent and Intensity

2/0/0. 0 credit(s). Type of Completion: z (credit).

Supervisor

prof. RNDr. Petr Dubový, CSc.

Department of Anatomy - Theoretical Departments - Faculty of Medicine

Contact Person: prof. RNDr. Petr Dubový, CSc.

Course objectives

At the end of the course students should be able to:

1. Name all parts of the human skeleton including the detailed relief.
2. Describe correctly joints of the bones.
3. Describe the movements occurring at each joint.
4. Characterize the newborn skull.
5. Distinguish the male and female skull and pelvis.
6. Identify individual muscles of the human body, discuss their attachments and innervations.
7. Define actions of individual muscles and muscular groups.
8. Define the components of the major organ systems (digestive, respiratory, urinary, and male genital)
9. Explain the morphology of the organs
10. Create apprehension about position and spatial relationships of particular organs and organ systems

Learning outcomes

At the end of the course student will be able to:

1. Name all parts of the human skeleton including the detailed relief.
2. Describe correctly joints and their movements.
3. Identify individual muscles of the human body, discuss their origin, insertion, innervation and function.
4. Define the components of the digestive and respiratory
5. Create apprehension about position and spatial relationships of particular organs and organ systems

Syllabus

- 1. Introduction to anatomy (anatomical terminology, planes and directions of the human body). Osteology, rules for description of bones. Introduction to radiology. Skeleton of the spine and thorax.

- 2. Skeleton of the upper extremity.
- 3. Skeleton of the lower extremity.
- 4. Bones of the neurocranium.
- 5. Bones of splanchnocranium. Skull.
- 6. Synovial joints (general structure). Joints of the spine, thorax and skull. Joints of the upper limb (art. humeri et cubiti).
- 7. Joints of the upper limb (art. radiocarpalis et mediocarpalis, canalis carpi). Joints of the lower limb (art. coxae, art. genus, art. talocruralis, art. tarsi transversa). Foot vault.
- 8. General description of the muscle. Muscles of the back and shoulder.
- 9. Muscles of the upper and lower extremity.
- 10. Digestive system 1 (structure of the digestive tube, oral cavity, pharynx, oesophagus, small and large intestine).
- 11. Digestive system 2 (liver, gall bladder, bile ducts, pancreas). Peritoneal cavity.
- 12. Preparation for the dissection: spinal nerve; dorsal rami; plexus brachialis, lumbalis et sacralis.
- 13. Dissection I. (dissection of the back, upper and lower extremities).
- 14. Respiratory system(laryngeal muscles and their function, laryngoscopy-anatomy, blood supply of lungs, mechanism of respiration).

Literature

required literature

- DRAKE, Richard L., Wayne VOGL and Adam W. M. MITCHELL. *Gray's anatomy for students*. Third edition. Philadelphia, Pa.: Churchill Livingstone, 2015. xxv, 1161. ISBN 9780702051319.
- DUBOVÝ, Petr. *Gross anatomy and structure of the human nervous system. Part I. Surface anatomy and structural arrangement of the central nervous system*. 2. dotisk 3. vyd. Brno: Masarykova univerzita, 2016. 92 pp. ISBN 978-80-210-6125-5.

recommended literature

- Anne M. Gilroy, Brian R. MacPherson (eds.) *Atlas of Anatomy*, 3rd Edition, 2016, Thieme Medical Publishers, Inc. ISBN: 9781626232525
- KACHLÍK, David and Ondřej VOLNÝ. *Memorix anatomy : comprehensive book of human anatomy in English and Latin*. Illustrated by Radovan Hudák - Jan Balko - Simona Felšňová - Šárka Zaváza. 1st edition. Praha: Triton, 2015. xvii, 610. ISBN 9788073879501.
- Sobotta Atlas of Anatomy, Package, 16th ed., English/Latin, 16th Edition. ISBN 9780702052682

Teaching methods

Lectures

Assessment methods

Assessment is carried out after completion of following subjects within the scope of anatomy final examination: VLAN0121s Anatomy I – seminar, VLAN0121c Anatomy I – dissection, VLAN0222p Anatomy II – lecture, VLAN0222s Anatomy II – seminar, VLAN0222c Anatomy II – dissection)

Language of instruction

English

aVLAN0121c Anatomy I - dissection

Faculty of Medicine

autumn

Extent and Intensity

0/1.3/0. 3 credit(s). Type of Completion: z (credit).

Supervisor

prof. RNDr. Petr Dubový, CSc.

Department of Anatomy - Theoretical Departments - Faculty of Medicine

Contact Person: prof. RNDr. Petr Dubový, CSc.

Course objectives

At the end of the course students should be able to:

1. Describe all components (bones, joints, muscles, vessels and nerves) of the upper and lower extremities, and back
2. Relate features of extremities and back with respect to adjacent structures
3. Review arrangement of layers from the superficial to deep ones in all regions of the upper and lower limbs and back
4. Create the anatomical prosection of some studied region using specified dissecting procedures
5. Distinguish abnormalities of the prosections.

Learning outcomes

At the end of the course students should be able to describe all anatomical components of the upper and lower extremities and back and consider relationships of particular structures in topographic areas. Students should also be able to review arrangement of layers from the superficial to deep ones in all regions of the upper and lower limbs and back.

Syllabus

- 1st day:back - skin incisions, subcutis, innervation, blood supply; UL - reg. deltoideoscapularis, dissection of the arm; LL - reg. glutea; reg. femoris ant.
- 2nd day:back - dissection of the trapezius, latissimus dorsi; UL - completion of the dissection of the arm; reg. antebrachii, skin, subcutic, superficial muscles; LL - reg. femoris post., reg. cruris.
- 3rd day:back - dissection of the rhomboids, levator scapulae, erector spinae; UL - completion of the dissection of the forearm; palma manus; LL - completion of the dissection of the crus; dorsum pedis;

- 4th day:back - dissection of the splenius, semispinalis, mm. serrati; mm. nuchae profundi, trigonum suboccipitale, mm. multifidi; UL - completion of the dissection of the palma manus; dorsum manus; LL - planta pedis
- 5th day: Demonstration of the dissected regions

Literature

required literature

DUBOVÝ, Petr. Instructions for anatomical dissection course. 3. vyd. Brno: Masarykova univerzita, 2013. 71 pp. ISBN 978-80-210-6202-3. info

recommended literature

DRAKE, Richard L., Wayne VOGL and Adam W. M. MITCHELL. Gray's anatomy for students. Third edition. Philadelphia, Pa.: Churchill Livingstone, 2015. xxv, 1161. ISBN 9780702051319. info

DUBOVÝ, Petr. Gross anatomy and structure of the human nervous system. Part I. Surface anatomy and structural arrangement of the central nervous system. 2. dotisk 3. vyd. Brno: Masarykova univerzita, 2016. 92 pp. ISBN 978-80-210-6125-5. info

Anne M. Gilroy, Brian R. MacPherson (eds.) Atlas of Anatomy, 3rd Edition, 2016, Thieme Medical Publishers, Inc. ISBN: 9781626232525

KACHLÍK, David and Ondřej VOLNÝ. Memorix anatomy : comprehensive book of human anatomy in English and Latin. Illustrated by Radovan Hudák - Jan Balko - Simona Fejššová - Šárka Zaváza. 1st edition. Praha: Triton, 2015. xvii, 610. ISBN 9788073879501. info

Sobotta Atlas of Anatomy, Package, 16th ed., English/Latin, 16th Edition. ISBN 9780702052682

Teaching methods

Anatomical dissection of the human body

Assessment methods

Completion of the course is assessed by the course-unit credit. A precondition for obtaining the course-unit credit is 100% attendance and demonstration of the basic knowledge during an examination at the close of the dissection course. When 100% attendance could not be fulfilled due to an illness (medical confirmation required) the dissection course has to be substituted in full extent during the second week of the examination period of the semester. The results of the examination will be included in the results of the practical part of the final examination in Anatomy. A minimum of 6 out of 10 possible points (grade E) in the examination at the end of the course is required for fulfillment. For unsuccessful students a resit date will be offered (involved in the final exam date).

Language of instruction

English

aVLBF011c Biophysics - practice

Faculty of Medicine

autumn

Extent and Intensity

0/4/0. 3 credit(s). Type of Completion: z (credit).

Supervisor

prof. RNDr. Vojtěch Mornstein, CSc.

Department of Biophysics - Theoretical Departments - Faculty of Medicine

Contact Person: prof. RNDr. Vojtěch Mornstein, CSc.

Course objectives

At the end of the course students should be able: understand and explain biophysical principles and laws; operate basic biophysical devices; evaluate obtained data by the basic biophysical methods in light of a scientific, effective, safe and efficient attitude to their use; understand principles of the more complex therapeutical and diagnostical medical devices; describe possible usage of the biophysical techniques and medical devices in practice;

At the end of this course the student will also have to demonstrate basic skills and habits in data handling and processing of health related data, information and concepts, and the ability of making reasoned decisions as defined in the following paragraphs: 1. Searching, retrieval, storage, use of data, information and knowledge in medical decision making in diagnostics, treatment. 2. Improvement of skills in critical thinking especially in the area of Evidence Based Medicine. 3. Understanding the logics of the health and health care environment, communication with professionals and lay community. 4. Gaining initial insight in the core areas of health care informatics competences (possibilities, limitations and risks) in use of information and communication technologies in a medical environment. This is not a course in computer literacy (working with software programs).

Learning outcomes

After finishing the course the student will be able to:

- explain biophysical principles and laws necessary to operate basic measuring instruments;
- evaluate obtained data by the basic biophysical methods; understand principles underlying the complex therapeutical and diagnostical medical devices;
- substantiate possible usage of the biophysical techniques and medical devices in practice;
- to independently and actively seek and use tools, procedures and processes facilitating the correct use of information society environment for more effective study of medicine and more efficient provision of medical services in individual medical specialties;
- to understand the possibilities and risks of digitization and use of digital information and communication tools in the process of providing medical services; The student will get a general overview of the benefits of the information society in the medical domain and will acquire basic behavioral habits in this field.

Syllabus

- **Practical exercises on biophysics**
- 1. Introduction, regulations of practical exercises, laboratory safety rules, etc. An introduction to the theory of measurement.
- 2. Information (overview and evolution). Medical informatics (definitions, the subject). Information technologies (hardware, software, OS, LAN, WAN).

- 3. Information resources (data mining - data warehousing). Information systems (HIS, expert systems, AI, CME).
- 4. Measurement of liquid viscosity. Measurement of surface tension of liquids
- 5. Eosin absorption curve. Spectrophotometrical determination of concentration of eosin. Refractometric determination of NaCl concentration. Polarimetry.
- 6. Audiometry. Measurement of the blood pressure. Ergometry.
- 7. Temperature measurement with a thermocouple. Measuring surface skin temperature with a thermistor. Measuring environmental parameters (noise).
- 8. Haemolysis of erythrocyte suspension by therapeutic ultrasound. Measuring ionising radiation absorption.
- 9. Measuring the voltage and frequency of electric signals by the oscilloscope. Measuring skin resistance. Measuring tissue model impedance. Analysis of acoustic elements of human voice.
- 10. Electromagnetic radiation. Measuring the cooling effect of the environment. Catathermometry. Measuring the illuminance, Luxmeter.
- 11. Contact and contactless thermography. Thermocamera and thermovision. Physiotherapy.
- 12. Electrodiagnostic, electrotherapeutic methods. Individual measuring of the ECG. Electrical excitability. Effect of the direct and alternating currents.
- 13. Advanced imaging methods. Ultrasound – diagnostic and therapeutic usage. Doppler measuring of the velocity of the blood flow. X-rays and Tomography. NMR.
- 14. Knowledge test.

Literature

- HRAZDIRA, Ivo, Vojtěch MORNSTEIN, Aleš BOUREK and Jiřina ŠKORPÍKOVÁ. Fundamentals of biophysics and medical technology. Edited by Vojtěch Mornstein. 3. dotisk 2., přeprac. vyd. Brno: Masarykova univerzita, 2017. 325 pp. ISBN 978-80-210-5758-6.

Teaching methods

Practical exercises

Assessment methods

Basic requirement is the full attendance in the lessons. Theoretical knowledges of the principles used methods are continuously controled by oral examination, in case of fundamental ignorance, student can be excluded from a lesson. For all tasks students must elaborate comprehensive and unique report, these are graded. If are two or more reports graded as "unsuccessful", student cannot write a closing test. Course is finished by the multiple choice test consisting usually 20 questions, evaluated by 20 points. For successfully mastered test student need at least 10 points.

Language of instruction

English

aVLBF011p Biophysics - lecture

Faculty of Medicine

autumn

Extent and Intensity

3/0/0. 6 credit(s). Type of Completion: zk (examination).

Supervisor

prof. RNDr. Vojtěch Mornstein, CSc.

Department of Biophysics - Theoretical Departments - Faculty of Medicine

Course objectives

At the end of the course students will understand and explain biophysical principles and laws; understand biophysical principles of the main devices; evaluate data obtained by the basic biophysical methods in light of a scientific, effective, safe and efficient attitude to their use; understand possible usage of the biophysical techniques and medical devices in practice; explain basic principles of the so-called physiological biophysics and (in certain extent) the theory and methods of molecular biophysics.

Learning outcomes

After finishing the course students will:

- understand and explain biophysical principles and laws important for medicine;
- understand biophysical principles of the main medical devices; understand possible usage of biophysical techniques and medical devices in common practice;
- explain basic principles of the so-called physiological biophysics and basic ideas the theory and methods of molecular biophysics.

Syllabus

- **Introduction into medical biophysics.**
- 1. Introduction. Biophysical view on structure of matter.
- 2. Biological effects of ionising radiation.
- 3. Thermodynamic principles and entropy.
- 4. Thermodynamic processes in living organisms.
- 5. Introduction into molecular biophysics I (subject of study).
- 6. Introduction into molecular biophysics II (methods of study).
- 7. Biophysics of biomembranes. Bioelectric phenomena.
- 8. Biophysics of cardiovascular system.
- 9. Biophysics of respiratory system.
- 10. Biophysical function of sensory receptors. Biophysics of hearing.

- 11. Biophysics of vision.
- 12. Effects of mechanical forces and acoustic fields on the living organisms.
- 13. Biological effects of electromagnetic fields and non-ionising radiation.
- 14. Introduction into biocybernetics and modelling.
- 15. Free theme.
- **Physical principles of medical technology.**
 - 1. Medicine and technology. Biosignals and their processing.
 - 2. Conventional X-ray imaging methods.
 - 3. Modern tomographic methods (CT, MRI).
 - 4. Radionuclide diagnostics.
 - 5. Methods and instruments for ionising radiation therapy.
 - 6. Measurement and registration of temperature.
 - 7. Optical laboratory instruments.
 - 8. Optical diagnostic instruments.
 - 9. Electrodiagnostic methods.
 - 10. Ultrasound imaging.
 - 11. Ultrasound Doppler and duplex methods.
 - 12. Measurement and registration of mechanical quantities.
 - 13. Methods and instruments used in physiotherapy.
 - 14. Modern physical methods in surgery. Lithotripsy.
 - 15. Artificial body organs. Nanotechnology in medicine.

Literature

recommended literature

- HRAZDIRA, Ivo, Vojtěch MORNSTEIN, Aleš BOUREK and Jiřina ŠKORPÍKOVÁ. *Fundamentals of biophysics and medical technology*. Edited by Vojtěch Mornstein. 3. dotisk 2., přeprac. vyd. Brno: Masarykova univerzita, 2017. 325 pp. ISBN 978-80-210-5758-6.

Teaching methods

lectures

Assessment methods

The exam has theoretical character but can be done only with the credits gained for practicals. The exam consists of written test consisting of 25 questions and oral part, which can be done only when the number of correctly answered test questions is 14 or more. This limit is lowered to 11 in the last exam resit. The oral part consists of 2 questions as a rule. They are chosen from the list which is

available in department web page. The examined student has to be able to explain the problems and characterise their possible clinical importance.

Language of instruction

English

aVLBI0121c Biology I - practice

Faculty of Medicine

autumn

Extent and Intensity

0/3/0. 3 credit(s). Type of Completion: z (credit).

Supervisor

prof. Ing. Petr Dvořák, CSc.

Department of Biology - Theoretical Departments - Faculty of Medicine

Contact Person: Mgr. Kateřina Vopěnková, Ph.D.

Course objectives

The main objectives of the course are:

- learning to operate the light microscope while observing prokaryotic and eukaryotic cells and various cell structures and processes
- understanding the methods of risk evaluation for monogenic hereditary diseases with autosomal inheritance in patients based on family anamneses

Learning outcomes

After completing the course the student will be able to:

- operate the light microscope
- perform some of the basic cytochemical staining techniques in observation of bacterial and human cells
- explain the basic principles and use of electron microscopy
- describe the basic techniques and applications of tissue and cell cultures
- deduce the impact of selected DNA mutations on the primary structure of proteins
- explain the methodology of assembling and examining the karyotype and its use, and to evaluate basic numerical and structural aberrations in assigned human karyotypes
- evaluate the risk of numerical and structural aberrations resulting from meiotic non-disjunctions and chromosomal translocations
- evaluate the risk of monogenic hereditary diseases with autosomal inheritance in patients based on assigned family anamneses of the diseases

Syllabus

- Week 1: Instructions. Non-cellular organisms and infectious agents
- Week 2: Prokaryotic cells and their medical significance
- Week 3: Microscopic observation of eukaryotic cells

- Week 4: *In vitro* culture of human cells
- Week 5: Principles of electron microscopy, cellular ultrastructure
- Week 6: DNA structure and replication. Transcription and translation
- Week 7: **Control test 1 (knowledge of the weeks 1 to 6 - lectures, seminars, practices); practical microscopy exam**
- Week 8: Methods of cell cycle studying
- Week 9: Mitosis observation in a light microscope
- Week 10: Biological significance of meiosis - gametogenesis
- Week 11: Human karyotype and chromosomal abnormalities
- Week 12: Genetic disorders - autosomal inheritance
- Week 13: no practice - dissection week
- Week 14: **Control test 2 (knowledge of the weeks 7 to 13 - lectures, seminars, practices)**

Literature

required literature

- Actual protocols for practices are provided in electronic form in the Information System of the Masaryk University (IS): Study Materials of the course aVLBI0121c

Teaching methods

laboratory practice, class discussion

Assessment methods

Practical classes are mandatory.

Requirements for course completion: full attendance in the practices (1 absence, excused or unexcused, is allowed); all protocols completed (also for missed lessons) and checked and signed by appropriate teachers; successfully passed practical microscopy exam; successfully passed 2 written control tests during the semester (20 questions each, 4 possibilities, 1 answer correct, student need to reach at least 12 points out of 20 in each test). In case you do not pass one of the control tests and its re-sit, you have to pass the final test (Credit test) based on knowledge of the entire semester lectures and practices. The test comprises of 20 questions: 10 test questions (multiple answers can be correct, negative marking is obtained for incorrect answers) + 10 given terms for written explanation. At least 10 points out of 20 are needed to pass.

In case of student's late arrival to the practice or poor activity at the practice, student is required to write an essay in the length of 2 pages on a given topic. Same for the case of 2nd and any additional absence in practices (excused or unexcused). Find the instructions for essay writing in the Course-related instructions in the IS, bring the essay printed to the teacher who specified the topic and be ready to answer the teacher's questions regarding the topic.

In case of 3 absences, (or more than 3 absences all excused by the Office for Studies within 5 days from the beginning of the absence and introduced to the Information System), it is addressed individually and course-unit credit is awarded only after the proof of the student's knowledge of the entire semester topics (Credit test, see above).

In case of 4 or more unexcused absences, course-unit credit is not awarded.

Language of instruction

English

aVLBI0121s Biology I - seminar**Faculty of Medicine**

autumn

Extent and Intensity

0/1/0. 3 credit(s). Type of Completion: z (credit).

Supervisor

prof. Ing. Petr Dvořák, CSc.

Department of Biology - Theoretical Departments - Faculty of Medicine

Contact Person: Mgr. Kateřina Vopěnková, Ph.D.

Course objectives

The main objectives of the course are:

- to revise and deepen the knowledge discussed at the respective Biology lecture
- to set this knowledge into a broader medical context

Learning outcomes

After completing the course the student will be able to:

- explain elementary processes taking place in cells and human body (gene expression, intercellular communication, cell differentiation, cell division, cell death) and their purposes
- express the basic coherence between malfunctioning cellular processes and development of diseases
- explain the general mechanism of pathogenesis in bacterial and viral diseases
- explain the general mechanism of pathogenesis of gene mutations and chromosome aberrations in humans, and illustrate it with examples
- explain the effects of therapies interacting with cellular processes; explain the principles of anti-bacterial, anti-viral and anti-mitotic treatment

Syllabus

- Introduction to medical biology – from understanding the cellular principle to modern biomedicine
- Bacteria and viruses – characteristics, reproduction strategies and principles of treatment
- Structure, functions and function anomalies of eukaryotic cells
- Cell signalling and the principle of cell differentiation
- Cells in the context of the entire organism – principles of cell adhesion and intercellular communication
- The importance of genetic information – the journey from a gene to protein; DNA replication
- Cell cycle – molecular mechanisms of regulation and significance for oncology

- Mitotic division in normal and cancer cells
- Meiosis and the principle of genetic variability
- The basics of genetics, the nature of dominance and recessivity
- Genetics of human diseases – molecular principles of genetically determined disorders
- Cell death – mechanisms and regulation of apoptosis and its significance for medicine
- Epigenetics – the link between genes and environment

Literature

required literature

- *Essential cell biology*. Edited by Bruce Alberts. 3rd ed. New York: Garland Science, 2009. 1 v. ISBN 9780815341307.
- *Medical genetics at a glance*. Edited by D. J. Pritchard - Bruce R. Korf. 3rd ed. Chichester, England: Wiley-Blackwell, 2013. 1 online r. ISBN 9781118689028.

Teaching methods

discussions, problem solving and interaction using a voting system

Assessment methods

Without examination - Biology I is continued with Biology II which is completed with a written examination test. Requirements for course completion: full attendance in the seminars.

Language of instruction

English

aVLBI0121p Biology I - lecture

Faculty of Medicine

autumn

Extent and Intensity

1/0/0. 0 credit(s). Type of Completion: z (credit).

Supervisor

prof. Ing. Petr Dvořák, CSc.

Department of Biology - Theoretical Departments - Faculty of Medicine

Contact Person: Mgr. Kateřina Vopěnková, Ph.D.

Course objectives

The main objectives of the course are:

- understanding the elementary cellular processes and the principle of intercellular communication
- understanding the principle of developing bacterial, viral and genetically determined diseases

Learning outcomes

After completing the course the student will be able to:

- explain elementary processes taking place in cells and human body (gene expression, intercellular communication, cell differentiation, cell division, cell death) and their purposes
- express the basic coherence between malfunctioning cellular processes and development of diseases
- explain the general mechanism of pathogenesis in bacterial and viral diseases
- explain the general mechanism of pathogenesis of gene mutations and chromosome aberrations in humans, and illustrate it with examples
- explain the effects of therapies interacting with cellular processes; explain the principles of anti-bacterial, anti-viral and anti-mitotic treatment

Syllabus

- Introduction to medical biology – from understanding the cellular principle to modern biomedicine
- Bacteria and viruses – characteristics, reproduction strategies and principles of treatment
- Structure, functions and function anomalies of eukaryotic cells
- Cell signalling and the principle of cell differentiation
- Cells in the context of the entire organism – principles of cell adhesion and intercellular communication
- The importance of genetic information – the journey from a gene to protein; DNA replication
- Cell cycle – molecular mechanisms of regulation and significance for oncology
- Mitotic division in normal and cancer cells
- Meiosis and the principle of genetic variability
- The basics of genetics, the nature of dominance and recessivity
- Genetics of human diseases – molecular principles of genetically determined disorders
- Cell death – mechanisms and regulation of apoptosis and its significance for medicine
- Epigenetics – the link between genes and environment

Literature

required literature

- ALBERTS, Bruce. *Essential cell biology*. 4th edition. New York, N.Y.: Garland Science, 2014. xxiii, 726. ISBN 9780815344551.
- *Medical genetics at a glance*. Edited by D. J. Pritchard - Bruce R. Korf. 3rd ed. Chichester, England: Wiley-Blackwell, 2013. 1 online r. ISBN 9781118689028.

Teaching methods

lecture every week

Assessment methods

Lecture attendance is optional. Without examination - Biology I is continued with Biology II which is completed with a written examination test based on knowledge of all topics from both semesters (lectures, seminars, practices).

Language of instruction

English

aVLOZ0141c Public Health I - practice

Faculty of Medicine

autumn

Extent and Intensity

0/1/0. 1 credit(s). Type of Completion: z (credit).

Supervisor

prof. MUDr. Bc. Zuzana Derflerová Brázdová, DrSc.

Department of Public Health - Theoretical Departments - Faculty of Medicine

Contact Person: MUDr. Kräuff Rainer Schwanhaeuser Wulff, MBA, Ph.D. et Ph.D., M.A.

Course objectives

After successfully completing the course, students will know the basic concepts and methods in the field of Public Health.

Students will be able to explain the benefits of population approach to the study of health and disease, and will be familiarized with the approaches, contents and basic concepts and methods of epidemiology.

Students will be able to search and interpret relevant data and use methods of descriptive and analytic epidemiology to describe and assess population health status.

Syllabus

- 1. General information about the course Public health I. Introduction to public health.
- 2. Introduction to epidemiology (definition of basic terms).
- 3. Measuring health and disease.
- 4. Levels of prevention. Primary, secondary and tertiary prevention. Screening and validity of tests.
- 5. Epidemiological studies - Types.
- 6. Epidemiological studies - Evaluation.
- 7. Causation in epidemiology.

Literature

required literature

- Bonita R, Beaglehole R, Kjellström: Basic epidemiology. 2nd edition. Geneva - Switzerland: World Health Organization; 2006. 212 pages. ISBN 978-92-4-154707-9.

recommended literature

- WHO: Health 2020. A European policy framework and strategy for the 21st Century. Geneva - Switzerland: World Health Organization; 2013. 182 pages. ISBN 978-92-890-0279-0

Teaching methods

Seminars / practices and class discussion.

Reading and studying ALL REQUIRED LITERATURE.

For those who will have to write research projects and seminar papers during third, fourth and fifth year, it is strongly recommended to enrol the following courses:

VSIL021 - Information literacy - (3 credits) - e-learning.

VSKP041 - A course of working with information sources and tools (4 credits).

Assessment methods

REQUIREMENTS TO OBTAIN THE CREDIT:

1. 100 % attendance to seminars / practices during the semester.
2. Absences will be tolerated just due to medical reasons - Students must provide appropriate documentation or medical excuse.
 - + Students must be aware that even with justified absences (medical excuse), a minimum of 80% attendance is required to obtain the credit. In case a student will have more than 20 % justified / unjustified absences, he / she will have to repeat the course in the following school year.
3. Fulfilment of given tasks:
 - + In case of unjustified absence (per each one), a 1,500-2,000 word seminar paper and a 5-8 minutes power point presentation on the seminar paper topic will be given. If the seminar paper is rejected due to deficiencies and it is not corrected and submitted again, the student will not fulfil with the subject's requirements, and he / she will not get the credit (See Absence and latecomer policy, Academic misconduct, plagiarism detection and unethical issues).
4. Active participation during the seminars / practices / lectures.
5. Pass the credit test. Students will be allowed to take the credit test only if they have fulfilled numeral 3 (requirements to obtain the credit).

*** This subject is part of the Public Health State Examination ***
See VLZP11XX - Public Health State Examination.

CREDIT TEST INFORMATION:

1. Get at least 70 % (14 out of 20 questions) in the credit test, which is a requisite to sit for examination.
2. Each student must register in the Information System (IS) in one of the offered credit test terms. The credit test has fixed examination terms / dates - (Only during the examination period, except the examination pre-term). No extra-terms will be given.
3. Students registered to a credit test term will fail the term if:
 - a-) arrive late to the test. No late arrival will be allowed after the start of the credit test.
 - b-) they are not present and previously do not cancel the term in the stipulated periods (see IS).
4. In case of failure, EACH STUDENT CAN RETAKE THE CREDIT TEST TWO MORE TIMES, only in given terms (according to Masaryk University study and examination regulations).
5. In case of failure during the third term (second resit), the student must repeat the course in the following school year.
6. All credit test questions are based on ALL REQUIRED LITERATURE, seminars and lectures.

The credit test is a written examination → 20 multiple choice question test, with only one correct answer - (to pass the test, it is required a minimum of 14 correct answers / points).

SCORE:

Passed → 14 and more correct answers / points.

Failed → 13,99 or less correct answers / points.

ABSENCE AND LATECOMER POLICY:

1. Justified, unjustified absences and late coming to classes:
 - a-) Justified absences → just due to medical reasons - Student must provide appropriate documentation or medical excuse in original.
 - b-) Unjustified absences → the student does not present the medical excuse (original) in the following week of the absence.
 - c-) Late coming to classes → the student arrives after attendance has been taken (3 minutes).
2. Measures against absenteeism or late coming to classes:
 - a-) Every unjustified absence or late coming to classes leads to a 1,500-2,000 word seminar paper plus a 5-8 minutes power point presentation on the same topic (the topics will be assigned in the same week of the absence or late coming).
 - b-) The seminar paper must be submitted on the subject's vault within the next 6 days of the incident (absence or late coming), in other case it will be rejected → They will not get the credit.

c-) Students will receive an email with the seminar paper instructions, and the word and power point frames.

d) Students take full responsibility for their seminar paper(s) and power point presentation(s). (See Academic misconduct, plagiarism detection and unethical issues).

3. THERE WILL BE NO EXCEPTIONS. In the following cases, students will be not get the credit / allowed to take the credit test:

- * Not submitting the assigned seminar paper.
- * If the seminar paper is rejected due to deficiencies and is not corrected and submitted again.
- * If despite the fact the seminar paper is accepted but the power point presentation is not shown in class.
- * If the seminar paper is rejected three times.
- * If the seminar paper has plagiarism or any unethical issues.

ACADEMIC MISCONDUCT, PLAGIARISM DETECTION AND UNETHICAL ISSUES:

1. Any attempts of ACADEMIC MISCONDUCT, such as cheating or assisting someone else to cheat during the credit test, will result in disciplinary actions, such as:

- a-) You will be required to hand over your examination paper and asked to leave the examination room. This means, you failed the examination (examination term), with the respective score F / 4, on your academic records in the information system.
- b-) Opening disciplinary proceedings.
- c-) Failing the subject / course.
- d-) Expulsion from university.

2. During the examination, it is forbidden to:

- a-) Use smart phones / Tablets.
- b-) Use laptops.
- c-) To wear earphones or headphones (if not medical prescribed).
- d-) To talk.

*In such cases, disciplinary actions will be taken (See above numeral 1).

3. Every seminar paper will be checked / scanned on university and external systems for online plagiarism detection.

4. Cases of suspected plagiarism will be investigated and given to the Disciplinary Committee as a motion to open disciplinary proceedings, according to the Disciplinary Code for Faculty Students.

5. Unethical issues will lead to seminar paper rejection → not getting the credit → repeating the course next school year or expulsion from university.

6. The plagiarism scan system is able to detect cut and paste from other languages with its respective translation into English. Avoid complications. Simply read the source and use your own words and the cite (quote) the source of information.

7. Students MUST be aware that before acceptance, all citations are controlled (compared with the original source). It will not be tolerated any attempts to create or manipulate citations (ACADEMIC MISCONDUCT). → Seminar paper rejection → not getting the credit → repeating the course next school year or expulsion from university.

Language of instruction

English

aVLOZ0141p Public Health I - lecture

Faculty of Medicine

autumn

Extent and Intensity

0.5/0/0. 2 credit(s). Type of Completion: k (colloquium).

Supervisor

prof. MUDr. Bc. Zuzana Derflerová Brázdová, DrSc.
Department of Public Health - Theoretical Departments - Faculty of Medicine

Course objectives

After successfully completing the course, students will know the basic concepts and methods in the field of Public Health.

Students will be able to explain the benefits of population approach to the study of health and disease, and will be familiarized with the approaches, contents and basic concepts and methods of epidemiology.

Students will be able to search and interpret relevant data and use methods of descriptive and analytic epidemiology to describe and assess population health status.

Syllabus

- 1. Introduction to public health I - orientation, development, contents and methods. Contribution of the population approach to health.
- 2. Health and population. Healthcare system in the society.
- 3. Health and its determinants. Social determinants of health.
- 4. Epidemiology as the basis of health policy.
- 5. International cooperation in preventing the spread of infections, eradication programs.

Literature

required literature

- Bonita R, Beaglehole R, Kjellström: Basic epidemiology. 2nd edition. Geneva - Switzerland: World Health Organization; 2006. 212 pages. ISBN 978-92-4-154707-9.

recommended literature

- WHO: Health 2020. A European policy framework and strategy for the 21st Century. Geneva - Switzerland: World Health Organization; 2013. 182 pages. ISBN 978-92-890-0279-0

Teaching methods

Lectures.

Reading and studying ALL REQUIRED LITERATURE.

For those who will have to write research projects and seminar papers during third, fourth and fifth year, it is strongly recommended to enrol the following courses:

VSIL021 - Information literacy - (3 credits) - e-learning.

VSKP041 - A course of working with information sources and tools (4 credits).

Assessment methods

COLLOQUIUM INFORMATION:

1. To sit for colloquium, it will be required to have obtained the subject's credit - aVLOZ0141c.
2. Each student must register in the Information System (IS) in one of the offered colloquium / examination terms. The colloquium has fixed colloquium / examination terms / dates - (Only during the examination period, except the examination pre-term). No extra-terms will be given.
3. Students registered to a colloquium term will fail the term if:
 - a-) arrive late. No late arrival will be allowed after the start of the colloquium.
 - b-) they are not present and previously did not cancel the term in the stipulated periods (see IS).
4. In case of failure, EACH STUDENT CAN RETAKE THE COLLOQUIUM TWO MORE TIMES, only in given terms (according to Masaryk University study rules).
5. In case of failure during the third term (second resit), the student must repeat the course in the following school year.
6. All colloquium questions are based on ALL REQUIRED LITERATURE, seminars and lectures.

Colloquium → Written examination → 20 multiple choice question test, with only one correct answer - (to pass the test, it is required a minimum of 14 correct answers / points).

SCORE:

Passed → 14 and more correct answers / points.

Failed → 13,99 or less correct answers / points.

*** This subject is part of the Public Health State Examination ***

See VLZP11XX - Public Health State Examination.

ACADEMIC MISCONDUCT, PLAGIARISM DETECTION AND ETHICAL ISSUES:

1. Any attempts of ACADEMIC MISCONDUCT, such as cheating or assisting someone else to cheat during the colloquium, will result in disciplinary actions, such as:
 - a-) You will be required to hand over your examination paper and asked to leave the examination room. This means, you failed the examination (examination term), with the respective score F / 4, on your academic records in the information system.
 - b-) Opening disciplinary proceedings.
 - c-) Failing the subject / course.
 - d-) Expulsion from university.

2. During the colloquium, it is forbidden to use items such as:
 - a-) Smart phones / Tablets.
 - b-) Laptops.
 - c-) To wear earphones or headphones (if not medical prescribed).
 - d-) To talk.

*In such cases, disciplinary actions will be taken (See above numeral 1).

Language of instruction

English

aVLLT0121s Basic Medical Terminology I - seminar

Faculty of Medicine

autumn

Extent and Intensity

0/0/1. 1 credit(s). Type of Completion: z (credit).

Supervisor

Mgr. Natália Gachallová

Language Centre, Faculty of Medicine Division - Faculty Branches of University Departments - Faculty of Medicine

Contact Person: Mgr. Libor Švanda, Ph.D.

Course objectives

Greek-Latin medical terminology is essential means for understanding the professional medical terminology. The curriculum conveys both theoretical and practical concepts used in medical documentation and is conceived as a preparatory course sui generis, introducing the students into the study of medicine by means of its language. In the first semester, the focus is put on the understanding of anatomical nomenclature and simple authentic diagnoses, mostly from traumatology.

The content of the course is fully derived from the actual needs of the professional practice. In the first place, it provides students with instruction on how to apply Latin and/or Greek quickly and purposefully, ie. the student are required to master the semantic aspect of terms, the grammatical forms and their functions. It also systematically develops student's ability to independently analyze medical terms, solve terminological problems, and form medical terms. Last but not least, the course also introduces the wider historical and linguistic foundations of medical terminology as well as its general theoretical contexts.

Learning outcomes

At the end of the course students will be able to:

- apply relevant Latin (and Greek) medical terms and expressions correctly and with understanding;
- recognize and explain grammatical concepts and categories relevant to the acquisition of Greek-Latin medical terminology;
- explain syntactic structure of complex terms;
- recognize the semantic structure of selected anatomical and clinical one-word terms;
- derive adjectives from nouns and vice-versa using common suffixes;
- form simple compound words denoting inflammatory and non-inflammatory diseases, as well as the basic types of tumours (-itis, -osis, -oma)
- translate anatomical terms and simple clinical diagnoses (with focus put on fractures and basic types of injuries, ie. traumatology).

Syllabus

- **BASIC MEDICAL TERMINOLOGY - seminar.** Syllabus.
-
- *1st week:* Introduction to the study of the subject. Specifics of Latin pronunciation.
- *2nd week:* Using the Latin terms denoting basic body parts, bones and organs in context. The basic forms of anatomical terms - focus on the use of Genitive and 1st declension nouns. Syntactic relations among constituents of multiple terms : noun in apposition and prepositional phrase.
- *3rd week:* Noun + adjective terms in anatomy: agreed attribute. Focus on skeletal system.
- *4th week:* Latin terms of 2nd declension. Focus on muscular system.
- *5th week:* Specifics of Greek terms of 2nd declension. Latin in medical documentation, basic structure of a medical diagnose.
- *6th week:* Progress test I. Specifics of the consonant stems of Latin 3rd declension - recognizing Genitive stem and its importance. Agreed attribute of Latin nouns of 3rd declension and Adjectives of 1st and 2nd declensions.
- *7th week:* Discussing common mistakes in the progress test I. Specifics of the i-stems of Latin 3rd declension. Medical terms denoting most common types of injuries (vulnus ---; -io).
- *8th week:* Greek terms of 3rd declension: paradigm dosis. Analysis of authentic medical reports from traumatology.

- *9th week:* Progress test II. Specifics of 4th and 5th declension. Differentiating the declension of -us ending nouns.
- *10th week:* The most frequently used medical terms of 4th and 5th declension. Common features of particular cases throughout all declensions.
- *11th week:* Introduction to adjectives of 3rd declension and their specifics: three types of adjectives based on the number of endings in Nominative. Basic types of fractures. How to write a medical report - order of information according to their importance, locating the fracture properly.
- *12th week:* Adjective-forming suffixes: -alis, e; -aris, e; -icus, a, um; eus, a, um. The parallels between Latin and English adjectives used in medical terminology.
- *13th week:* Final revision. Working with authentic medical material.
- *14th week:* Dissections.

Literature

required literature

- PRUCKLOVÁ, Renata a Marta SEVEROVÁ. Introduction to Latin and Greek Terminology in Medicine. 4th rev. ed. Praha: KLP, 2016. x, 117. ISBN9788087773413.

recommended literature

- EHRLICH, Ann and Carol L. SCHROEDER. *Medical terminology for health professions*. 6th ed. Clifton Park, NY: Delmar, Cengage Learning, 2009. xxvi, 582. ISBN 9781418072520.

Teaching methods

lectures, presentations, translation and grammar exercises, drills, group activities, authentic diagnoses

Assessment methods

Requirements for gaining the credit: regular class attendance, active participation in class, preparation for classes, passing the credit test (60-70% based on the passing/failing the progress tests) - see the guarantee's instructions. Only one unexcused absence will be tolerated; further absences must be properly excused (i.e. via the Study Department of the Faculty of Medicine).

Language of instruction

English

aVLLT0121c Basic Medical Terminology - practice

Faculty of Medicine

autumn

Extent and Intensity

0/1/0. 1 credit(s). Type of Completion: z (credit).

Supervisor

Mgr. Natália Gachallová

Language Centre, Faculty of Medicine Division - Faculty Branches of University Departments - Faculty of Medicine

Contact Person: Mgr. Libor Švanda, Ph.D.

Course objectives

Greek-Latin medical terminology is essential means for understanding the professional medical terminology. The curriculum conveys both theoretical and practical concepts used in medical documentation and is conceived as a preparatory course *sui generis*, introducing the students into the study of medicine by means of its language. In the first semester, the focus is put on the understanding of anatomical nomenclature and simple authentic diagnoses, mostly from traumatology.

The content of the course is fully derived from the actual needs of the professional practice. In the first place, it provides students with instruction on how to apply Latin and/or Greek quickly and purposefully, i.e. the students are required to master the semantic aspect of terms, the grammatical forms and their functions. It also systematically develops student's ability to independently analyze medical terms, solve terminological problems, and form medical terms. Last but not least, the course also introduces the wider historical and linguistic foundations of medical terminology as well as its general theoretical contexts.

Learning outcomes

At the end of the course students will be able to:

- apply relevant Latin (and Greek) medical terms and expressions correctly and with understanding;
- recognize and explain grammatical concepts and categories relevant to the acquisition of Greek-Latin medical terminology;
- explain syntactic structure of complex terms;
- recognize the semantic structure of selected anatomical and clinical one-word terms;
- derive adjectives from nouns and vice-versa using common suffixes;
- form simple compound words denoting inflammatory and non-inflammatory diseases, as well as the basic types of tumours (-itis, -osis, -oma)
- translate anatomical terms and simple clinical diagnoses (with focus put on fractures and basic types of injuries, i.e. traumatology).

Syllabus

- **BASIC MEDICAL TERMINOLOGY - seminar.** Syllabus.
-
- *1st week:* Introduction to the study of the subject. Specifics of Latin pronunciation.
- *2nd week:* Using the Latin terms denoting basic body parts, bones and organs in context. The basic forms of anatomical terms - focus on the use of Genitive and 1st declension nouns. Syntactic relations among constituents of multiple terms : noun in apposition and prepositional phrase.
- *3rd week:* Noun + adjective terms in anatomy: agreed attribute. Focus on skeletal system.

- *4th week:* Latin terms of 2nd declension. Focus on muscular system.
- *5th week:* Specifics of Greek terms of 2nd declension. Latin in medical documentation, basic structure of a medical diagnose.
- *6th week:* Progress test I. Specifics of the consonant stems of Latin 3rd declension - recognizing Genitive stem and its importance. Agreed attribute of Latin nouns of 3rd declension and Adjectives of 1st and 2nd declensions.
- *7th week:* Discussing common mistakes in the progress test I. Specifics of the i-stems of Latin 3rd declension. Medical terms denoting most common types of injuries (vulnus ---; -io).
- *8th week:* Greek terms of 3rd declension: paradigm dosis. Analysis of authentic medical reports from traumatology.
- *9th week:* Progress test II. Specifics of 4th and 5th declension. Differentiating the declension of -us ending nouns.
- *10th week:* The most frequently used medical terms of 4th and 5th declension. Common features of particular cases throughout all declensions.
- *11th week:* Introduction to adjectives of 3rd declension and their specifics: three types of adjectives based on the number of endings in Nominative. Basic types of fractures. How to write a medical report - order of information according to their importance, locating the fracture properly.
- *12th week:* Adjective-forming suffixes: -alis, e; -aris, e; -icus, a, um; eus, a, um. The parallels between Latin and English adjectives used in medical terminology.
- *13th week:* Final revision. Working with authentic medical material.
- *14th week:* Dissections.

Literature

required literature

- PRUCKLOVÁ, Renata a Marta SEVEROVÁ. Introduction to Latin and Greek Terminology in Medicine. 4th rev. ed. Praha: KLP, 2016. x, 117. ISBN9788087773413.

recommended literature

- EHRLICH, Ann and Carol L. SCHROEDER. *Medical terminology for health professions*. 6th ed. Clifton Park, NY: Delmar, Cengage Learning, 2009. xxvi, 582. ISBN 9781418072520. [info](#)

Teaching methods

lectures, presentations, translation and grammar exercises, drills, group activities, authentic diagnoses

Assessment methods

Requirements for gaining the credit: regular class attendance, active participation in class, preparation for classes, passing the credit test (60-70% based on the passing/failing the progress tests) - see the course requirements available in study materials. Only one unexcused absence

will be tolerated; further absences must be properly excused (i.e. via the Study Department of the Faculty of Medicine).

Language of instruction

English

aVLPO011c First Aid - practice

Faculty of Medicine

autumn

Extent and Intensity

0/1/0. 1 credit(s). Type of Completion: z (credit).

Supervisor

MUDr. Lukáš Dadák, Ph.D.

Department of Anesthesiology and Intensive Care - Institutions shared with St. Anne's Faculty Hospital - Faculty of Medicine

Course objectives

At the end of this course, students should be able to:

understand basic vital signs;

provide Basic Cardiac Life Support according to ERC guidelines from 2015;

provide first aid including wound dressing, transport and vital signs monitoring.

Learning outcomes

Student will be able to:

- carry out primary and secondary survey of the patient;
- show 1 minute of basic life support on the model of adult;
- show 1 minute of basic life support on the model of child;
- to provide first aid to the unconscious and conscious victim.
- communicate with the conscious patient.

Syllabus

- Cardiopulmonary resuscitation; Examination of the casualty. Basic vital functions. Breathing disorders, apnea, airway obstruction. Airway management, artificial ventilation. Cardiac arrest, circulation failure. Chest compressions, precordial thrust, cardiopulmonary resuscitation.
- CPR in children.
- Bleeding external, internal. Wounds. Bleeding management. Shock, treatment. Fainting, fatigue.
- Burns.
- Bandages.

- Fractures, injuries of joints and muscles - Treatment, immobilisation skills, splints, positioning.

Literature

required literature

- AUSTIN, Margaret, Rudy CRAWFORD and Barry KLAASSEN. *First aid manual : the Authorised Manual of St John Ambulance, St Andrew's First Aid and the British Red Cross*. Revised 10th edition. London: DK, 2016. 288 stran. ISBN 9780241241233.

not specified

- *First aid : manual*. 10th ed. London: Dorling Kindersley, 2014. 288 s. ISBN 9781409342007. i

Bookmarks

<https://is.muni.cz/in/tag/LF:aVLPO011c!>

Teaching methods

Lectures, class discussion and simulation with debriefing.

Assessment methods

Class exercises are obliged. MCQ test - student must pass well at least 85% of questions.

Language of instruction

English

aVLPO011p First Aid - lecture

Faculty of Medicine

autumn

Extent and Intensity

1/0/0. 2 credit(s). Type of Completion: k (colloquium).

Supervisor

MUDr. Lukáš Dadák, Ph.D.

Department of Anesthesiology and Intensive Care - Institutions shared with St. Anne's Faculty Hospital - Faculty of Medicine

Course objectives

At the end of this course, students should be able to: understand basic vital signs; provide Basic Cardiac Life Support according to ERC guidelines; provide first aid including wound dressing, vital signs monitoring and transport.

Learning outcomes

Student will be able to:

- carry out primary and secondary survey of the patient;

- show 1 minute of basic life support on the model of adult;
- show 1 minute of basic life support on the model of child;
- to provide first aid to the unconscious and conscious victim.
- communicate with the conscious patient.

Syllabus

- Introduction to First Aid. The rescuer's safety. Access to the disabled. Chain of survival. Rights and obligations. Basic Life Support, Automated External Defibrillator, Foreign Body Airway Obstruction, Mask ventilation, quality of survival.
- Basic Life Support of children, laryngitis, epiglottitis.
- Disorders of consciousness, convulsions, stroke, diabetes complications.
- Bleeding including specific situations.
- Head injuries (face, eye, teeth), neck and spine.
- Chest and abdominal injuries.
- Injuries of limbs and pelvis.
- Shock - hypovolemic, anaphylactic, haemorrhagic.
- Damage to heat, cold, electric current.
- Drowning, accidents in nature (animals, lightning), hanging
- Common medical problems (fever, diarrhea, vomiting, pain (abdominal, chest, head), meningitis, asthma).
- Intoxication, drugs, mental disorders.

Literature

recommended literature

- AUSTIN, Margaret, Rudy CRAWFORD and Barry KLAASSEN. *First aid manual : the Authorised Manual of St John Ambulance, St Andrew's First Aid and the British Red Cross*. Revised 10th edition. London: DK, 2016. 288 stran. ISBN 9780241241233.

not specified

- *First aid : manual*. 10th ed. London: Dorling Kindersley, 2014. 288 s. ISBN 9781409342007.

Bookmarks

<https://is.muni.cz/in/tag/LF:aVLPO011p!>

Teaching methods

We use lectures, class discussion and simulation with debriefing.

Assessment methods

Oral exam.

Language of instruction

English

aVLCJ0181 Czech Language for Foreigners I - practice

Faculty of Medicine

autumn

Extent and Intensity

0/3/0. 3 credit(s). Type of Completion: z (credit).

Supervisor

PhDr. Ivana Rešková, Ph.D.

Language Centre, Faculty of Medicine Division - Faculty Branches of University Departments - Faculty of Medicine

Contact Person: Mgr. Veronika Dvořáčková, Ph.D.

Course objectives

The main aim of the course Czech for Foreigners is to teach students communicate with patients in Czech without any help of English speaking doctors or interpreters and independently take case history. Successful communication in Czech is required by all medical universities during their practical trainings at Czech hospitals. The aim of the Czech I course is working knowledge of the Czech language on the A1 level of the "Common European Framework of Reference" (CEFR/Independent User) checked by an examination.

Learning outcomes

After first year students can:

- understand vocabulary and basic phrases related to students, their families, and their immediate specific surrounding, provided people speak clearly and at a slow rate.
- communicate in common routine tasks, such as shopping, accommodation, using public transport, orientation in the city, asking the way, being able to describe their place of living and people they know by simple phrases and sentences.
- fill in forms with personal data, such as name, nationality and address when applying for residence accommodation.

Emphasis put on knowledge of parts of body and basic useful phrases in medical communication.

Syllabus

- 1st week: LEKCE 1/1: *Communicative Competency*: Introduction, Greetings. Phrases in the classroom. Instructions. Where are you from? What do you do? *Grammar*: Czech alphabet. Pronunciation. Vowels, diphthongs. Consonants, assimilation of consonants in groups. Personal pronouns. The verb "být". The numbers 1 - 10.
- 2nd week: LEKCE 1/2: *Communicative Competency*: What do you do in Brno? *Grammar*: Who is it? What is it? Natural genders in Czech. Addressing people. Verb conjugation I (-at, -et/ět/-it, -ovat). The verb "mít".

- 3rd week: LEKCE 2/1: *Communicative Competency*: Where is it? Locations. How can I get there? *Grammar*: Grammatical genders I. Nominative sg. Ten, ta, to. Adjectives: hard and soft. Adverbs of direction and location.
- 4th week: TEST 1. LEKCE 2/2: *Communicative Competency*: Asking for and giving directions. Jedu autem etc. Writing e-mails. *Grammar*:: The verbs jít versus jet. Líbí se mi, chutná mi. The numbers 11-1000. Project 1: Mail kamarádovi/kamarádce.
- 5th week: LEKCE 3/1: *Communicative Competency*: Food and drink. In a restaurant. *Grammar*: Genders II (revision). Conjugation -u. The verbs chtít, jíst and mít rád/a.
- 6th week: LEKCE 3/2: *Communicative Competency*: Invitation. *Grammar*: The accusative singular I. Expressions with the verb mít.
- 7th week: TEST 2. LEKCE 4/1. *Communicative Competency*: My family. How old are you? *Grammar*: Possessive pronouns. Jaký, -á, -é?
- 8th weeks: LEKCE 4/2. *Communicative Competency*: Petr's family. *Grammar*: Revision of the accusative. Accusative sg of Ma. Questions KOHO, CO? Verbs and basic prepositions with accusative. The numbers 1000-10 000. Project 2: Moje rodina.
- 9th week: TEST 3. LEKCE 5/1. *Communicative Competency*: REVISION: Formal and informal dialogues (Introduction, In a restaurant, Invitation, Your family). *Grammar*: When is it? What time is it? Times of the day.
- 10th week: LEKCE 5/2: *Communicative Competency*: Marina's day. Daily routine. *Grammar*: What time is it? Talking about time (revision). Modal verbs I. Days of the week.
- 11th week: TEST 4 (ORAL TEST).
- 12th week: REVISION TEST 5 (1-5). LEKCE 5/3. *Communicative Competency*: When will we meet? Marina's week. *Grammar*: Modal verbs II. The expression rád/a/i. Prepositions od-do. PROJECT 3: Můj den.
- 13th week: DISSECTION PRACTICE.
- 14th week: FINAL REVISION. *Communicative Competency*: Skřivánek, nebo sova? *Grammar*: Time expressions.
- 15th week: FINAL TEST FOR ALL GROUPS.

Literature

required literature

- HOLÁ, Lída. Český krok za krokem 1. Praha: Akropolis 2016. 260 s. ISBN 978-80-7470-129-0.
- HOLÁ, Lída a kol. Český krok za krokem 1. Pracovní sešit (Lekce 1-12). Praha: Akropolis 2016. 160 s. ISBN 978-80-7470-133-7.

Teaching methods

The tuition is realised in the form of practical courses. The following teaching methods are used: class discussion, roleplay, work in groups, reading, listening, writing HW (including Projects), word study. Emphasis put on selfstudy!

Assessment methods

The tuition is realised in the form of practical courses. The students' presence in these courses is strictly required; a maximum of two unexcused absences is tolerated. Students are allowed to substitute a maximum of TWO classes with another group. Substitutions are not possible in the weeks when Progress Test take place. Students must inform the teacher of the group in which they intend to substitute their missed class in writing in advance. If they fail to do so, they will not be allowed to attend the class. If a student has more than two unexcused absences, they will not be allowed to take the Final test. The tuition is finished by a course-unit credit given on the basis of the students' presence, preparation for classes, sitting Progress Tests and their successful passing of a credit test. The basic limit for passing all tests is 70%. In case of passing five Progress tests, which are obligatory for all students, the basic limit in the credit test is reduced by 10%. Students who score a minimum of 90% in EACH progress test are not obliged to take the credit test. Any copying, recording or leaking tests, use of unauthorized tools, aids and communication devices, or other disruptions of objectivity of exams will be considered non-compliance with the conditions for course completion as well as a severe violation of the study rules. Consequently, the teacher will finish the exam by awarding grade "N" in the Information System, and the Dean will initiate disciplinary proceedings that may result in study termination.

Language of instruction

English

YEAR 1 / SEMESTER 2

aVLAN0222c Anatomy II - dissection

Faculty of Medicine

spring

Extent and Intensity

0/2.7/0. 3 credit(s). Type of Completion: z (credit).

Supervisor

prof. RNDr. Petr Dubový, CSc.

Department of Anatomy - Theoretical Departments - Faculty of Medicine

Course objectives

At the end of the course students should be able to:

1. Define topographical regions of the head, neck, thorax, abdomen, and pelvis
2. Identify basic anatomical structures (bones, joints, viscera, vessels, and nerves) in the regions of the head, neck, thorax, abdomen, and pelvis
3. Demonstrate practically particular organs of the head, neck, thorax, abdomen, and pelvis at the human cadaver
4. Create the anatomical prosection of some studied region using specified dissecting procedures
5. Distinguish abnormalities of the prosections.

Learning outcomes

Students should be able to define topographical regions of the head, neck, thorax, abdomen, and pelvis; identify and demonstrate practically particular structures and organs of the head, neck, thorax, abdomen, and pelvis at the human cadaver.

Syllabus

- Dissection of the head: parotidomasseteric region, anterior facial region, temporal region, occipitofrontal region, cranial cavity, dissection of the brain, pharynx, parapharyngeal space, soft palate, infratemporal fossa, larynx, nasal cavity, orbit, temporal bone.
- Dissection of the neck: skin incisions, subcutaneous tissue, infrahyoid muscles, carotid triangle, suprahyoid region, cervical and brachial plexuses, subclavian triangle.
- Dissection of the thorax: skin incisions, subcutaneous tissue, muscular layer, axillary fossa, intercostal spaces, thoracic cavity, pleura and lungs, pericardium and heart, mediastinum.
- Dissection of the abdomen: skin incisions, subcutaneous tissue, muscular layer, inguinal region, abdominal cavity, situs viscerum, removal of organs, branches of the abdominal aorta, retroperitoneal space.
- Dissection of the pelvis: perineal region, external genital organs, ischioanal fossa, pelvic floor, organs of the lesser pelvis, the wall of the pelvis.

Literature

required literature

- DUBOVÝ, Petr. *Instructions for anatomical dissection course*. 1. dotisk 3. vyd. Brno: Masarykova univerzita, 2016. 71 pp. ISBN 978-80-210-6202-3.
- DUBOVÝ, Petr. *Gross anatomy and structure of the human nervous system*. Third edition. Brno: Masarykova univerzita, 2012. 90 stran. ISBN 9788021061255.

recommended literature

- DRAKE, Richard L., Wayne VOGL and Adam W. M. MITCHELL. *Gray's anatomy for students*. Third edition. Philadelphia, Pa.: Churchill Livingstone, 2015. xxv, 1161. ISBN 9780702051319.
- GILROY, Anne Marie. *Atlas of anatomy*. ?, 2016. ISBN 9781626232525.
- KACHLÍK, David and Ondřej VOLNÝ. *Memorix anatomy : comprehensive book of human anatomy in English and Latin*. Illustrated by Radovan Hudák - Jan Balko - Simona Felššová - Šárka Zaváza. 1st edition. Praha: Triton, 2015. xvii, 610. ISBN 9788073879501.

not specified

- Gosling, Harris, Humpherson, Whitmore & Willan. *Human Anatomy, Color Atlas and Textbook*, 6th Edition. Elsevier Books, 2016. ISBN 9780723438274

Teaching methods

Anatomical dissection of the human body

Assessment methods

Completion of the subject is assessed by the course-unit credit. A precondition for obtaining the course-unit credit is 100% attendance and demonstration of basic knowledge during examination at

the close of the practicals. The student who fails the 100% attendance due to an illness (after presentation of a medical certificate) substitutes the course to the full extent during the examination period of the semester. A minimum of 6 out of 10 possible points (grade E) in each examination is required for fulfillment. The results of the examination will be included in the results of the practical part of the final examination in Anatomy. The unsuccessful student will be re-examined at the respective date of the theoretical part of the final examination in Anatomy.

Language of instruction

English

aVLAN0222p Anatomy II - lecture

Faculty of Medicine

spring

Extent and Intensity

3/0/0. 7 credit(s). Type of Completion: zk (examination).

Supervisor

prof. RNDr. Petr Dubový, CSc.

Department of Anatomy - Theoretical Departments - Faculty of Medicine

Course objectives

At the end of the course students should be able to:

1. Describe cardiovascular organs, organs of senses, peripheral and central nervous systems
2. Explain function of the cardiovascular system, senses, peripheral and central nervous systems
3. Relate cardiovascular organs, organs of senses, peripheral and central nervous systems with respect to adjacent structures
4. Identify distribution and function of the sympathetic and parasympathetic components of the autonomic nervous system
5. Define topographical regions of the head, neck, thorax, abdomen, and pelvis
6. Identify basic anatomical structures (bones, joints, viscera, vessels, and nerves) in the regions of the head, neck, thorax, abdomen, and pelvis
7. Review mutual continuity between particular organ systems.

Learning outcomes

Students should be able to describe cardiovascular organs, organs of senses, peripheral and central nervous systems and explain their function. Then define topographical regions of the head, neck, thorax, abdomen, and pelvis.

Syllabus

- 1. Urinary system. Male genital system
- 2. Female genital system. Pelvic floor
- 3. Heart. Aortic arch
- 4. Arteries, veins, lymph. system (a review)

- 5. Spinal cord and brain stem (structure)
- 6. Cranial nerves (III, IV, VI, VII, IX - XII)
- 7. Trigeminal nerve. Cerebellum and diencephalon (structure, connections, functions). Hypothalamo-pituitary connections.
- 8. Telencephalon (structure). Basal ganglia (connections, functions)
- 9. Blood supply, meninges and ventricles of the CNS. Cerebrospinal fluid
- 10. Auditory and vestibular system. Cranial nerve VIII
- 11. Visual system and orbital region
- 12. ANS (cervical sympathetic system, enteric system, central modulation of the ANS)
- 13. Human body imaging techniques. Topographic anatomy of head, neck and trunk
- 14.+15. Dissections (dissection of the head, neck and trunk)

Literature

required literature

- DUBOVÝ, Petr. *Gross anatomy and structure of the human nervous system*. Third edition. Brno: Masarykova univerzita, 2012. 90 stran. ISBN 9788021061255.

recommended literature

- DRAKE, Richard L., Wayne VOGL and Adam W. M. MITCHELL. *Gray's anatomy for students*. Third edition. Philadelphia, Pa.: Churchill Livingstone, 2015. xxv, 1161. ISBN 9780702051319.
- GILROY, Anne Marie. *Atlas of anatomy*. ?, 2016. ISBN 9781626232525.
- KACHLÍK, David and Ondřej VOLNÝ. *Memorix anatomy : comprehensive book of human anatomy in English and Latin*. Illustrated by Radovan Hudák - Jan Balko - Simona Felšňová - Šárka Zaváza. 1st edition. Praha: Triton, 2015. xvii, 610. ISBN 9788073879501.

not specified

- Gosling, Harris, Humpherson, Whitmore & Willan. *Human Anatomy, Color Atlas and Textbook*, 6th Edition. Elsevier Books, 2016. ISBN 9780723438274

Teaching methods

lectures

Assessment methods

The subject is evaluated in the scope of the final examination.

Final examination:

The final examination in Anatomy consists of a practical and a theoretical part. To pass successfully the exam, the student has to obtain at least the grade E in both practical and theoretical parts of the final examination.

The practical part of final examination is represented by the results of the examinations in Anatomy I - Dissection and Anatomy II - Dissection. The student, who has not obtained at least grade E during above-mentioned courses, will be re-examined at the respective date of the theoretical part of the

final examination in Anatomy.

The theoretical part of final examination first proceeds in the form of a test with subsequent oral examination. To be entitled to proceed to oral examination, the student has to obtain at least 12 out of 18 points in the test. When successful at the test the student does not repeat it during a re-sit date. The student takes the test only during the regular and 1st re-sit dates. When unsuccessful at the test during the 1st re-sit date, the student will not repeat the test before the oral examination of the 2nd re-sit date. In the course of oral examination the student answers 4 questions selected by lot out of preannounced sets of questions and presents anatomical descriptions of two imaging techniques.

Language of instruction

English

aVLAN0222s Anatomy II - seminar

Faculty of Medicine

spring 2019

Extent and Intensity

0/3/0. 3 credit(s). Type of Completion: z (credit).

Supervisor

prof. RNDr. Petr Dubový, CSc.

Department of Anatomy - Theoretical Departments - Faculty of Medicine

Course objectives

At the end of the course students should be able to:

1. Define female genital organs, organs of the cardiovascular system, senses, and organs of peripheral and central nervous systems
2. Identify particular anatomical features of the female genital organs, cardiovascular system, eye, ear, central and peripheral nervous systems (i.e. brain, spinal cord, and peripheral nerves) including their blood supply
3. Characterize function of female genital organs, organs of cardiovascular system, senses, peripheral and central nervous systems
4. Discuss the distribution and function of the sympathetic and parasympathetic nervous systems
5. Relate studied organs with respect to adjacent structures

Learning outcomes

Students should be able to describe cardiovascular organs, organs of senses, peripheral and central nervous systems and explain their function. Then define topographical regions of the head, neck, thorax, abdomen, and pelvis.

Syllabus

- 1. Urinary system. Male genital system and pelvic floor. Description of X-ray pictures.
- 2. Female genital system and pelvic floor, topographic anatomy of pelvis. Description of X-ray pictures

- 3. Heart, ascending aorta, aortic arch. A. carotis communis, a. carotis externa
- 4. Descending aorta, main arteries and veins. Portal vein, portocaval anastomoses. Fetal circulation.
- 5. Gross anatomy of the CNS (spinal cord, brain stem). Appearance of the cranial nerves in the brain stem. Cranial nerve nuclei on the floor of IV. ventricle
- 6. Cranial nerves (III, IV, VI, VII, IX-XII). Skull base
- 7. Trigeminal nerve. Gross anatomy of the cerebellum and diencephalon
- 8. Telencephalon (anatomy; grey matter – cortex + basal ganglia; white matter – pathways)
- 9. Blood supply, meninges and ventricles of the CNS, cerebrospinal fluid
- 10. Auditory and vestibular system. Temporal bone
- 11. Visual system and orbital region
- 12. ANS. Preparations for dissection I: topographic anatomy of the head
- 13. Imaging techniques, reading of anatomical structures. Preparations for dissection II: topographic anatomy of the neck and trunk
- 14. + 15. Dissections (head, neck and trunk)

Literature

required literature

- DUBOVÝ, Petr. *Gross anatomy and structure of the human nervous system*. Third edition. Brno: Masarykova univerzita, 2012. 90 stran. ISBN 9788021061255.

recommended literature

- DRAKE, Richard L., Wayne VOGL and Adam W. M. MITCHELL. *Gray's anatomy for students*. Third edition. Philadelphia, Pa.: Churchill Livingstone, 2015. xxv, 1161. ISBN 9780702051319.
- GILROY, Anne Marie. *Atlas of anatomy*. ?, 2016. ISBN 9781626232525.
- KACHLÍK, David and Ondřej VOLNÝ. *Memorix anatomy : comprehensive book of human anatomy in English and Latin*. Illustrated by Radovan Hudák - Jan Balko - Simona Felšňová - Šárka Zaváza. 1st edition. Praha: Triton, 2015. xvii, 610. ISBN 9788073879501.

not specified

- Gosling, Harris, Humpherson, Whitmore & Willan. *Human Anatomy, Color Atlas and Textbook*, 6th Edition. Elsevier Books, 2016. ISBN 9780723438274

Teaching methods

Practice with the human anatomical specimens

Assessment methods

Completion of the subject is assessed by the course-unit credit. A precondition for obtaining the course-unit credit is 95% attendance at the seminars (1 non-attendance tolerated).

Language of instruction

English

aVLBI0222c Biology II - practice

Faculty of Medicine

spring

Extent and Intensity

0/3/0. 3 credit(s). Type of Completion: z (credit).

Supervisor

prof. Ing. Petr Dvořák, CSc.

Department of Biology - Theoretical Departments - Faculty of Medicine

Course objectives

The main objectives of the course are:

- learning the methods of risk evaluation for hereditary diseases of various molecular background in patients based on family anamneses
- understanding the basic principles of gene engineering
- understanding and practicing the selected molecular methods used for examination of some cancers or hereditary and infectious diseases with regard to selection of appropriate therapy

Learning outcomes

After completing the course the student will be able to:

- evaluate the risk of hereditary diseases of various molecular background in patients based on assigned family anamneses of the diseases
- describes the basic principles of genetic prognosis and genetic counselling
- suggest and perform basic molecular-genetic diagnostic examinations of some hereditary, tumour and infectious diseases (PCR, restriction digest, gel electrophoresis), and to interpret the obtained results
- explain selected basic techniques of gene engineering and their application in medicine, and, with knowledge of the used method, to select the clones of cells with an inserted gene
- explain the basic laboratory tests used in genetic toxicology and the overall use of genetic toxicology, and to interpret the results obtained by selected methods

Syllabus

- Week 1: Genetic disorders - gonosomal inheritance
- Week 2: Deviations from Mendelian genetics
- Week 3: Genetic prognosis and genetic counselling
- Week 4: Human population genetics
- Week 5: **Control test 3 (knowledge from week 13 of the autumn semester to week 4 of the spring semester - lectures, seminar, practices)**

- Week 6: Molecular diagnostics of cancer with respect to treatment options
- Week 7: Gene engineering – production of human proteins in bacterial cells
- Week 8: Molecular analysis of disease predispositions in humans
- Week 9: Molecular diagnostics of human pathogenic bacteria
- Week 10: Restriction mapping of DNA
- Week 11: Genetic toxicology
- Week 12: substitution practices – substitutions for public holidays
- Week 13: **Control test 4 (knowledge from week 5 to week 12 of the spring semester - lectures, practices)**
- Week 14: dissection week – no practices
- Week 15: dissection week – no practices

Literature

required literature

- Protocols for practices are provided in electronic form in the Information System of the Masaryk University in the Study Materials of the course aVLBI0222c

Teaching methods

laboratory practice, class discussion

Assessment methods

Practical classes are mandatory.

Requirements for course completion: full attendance in the practices (1 absence, excused or unexcused, is allowed); all protocols completed (also for missed lessons) and checked and signed by appropriate teachers; successfully passed 2 written control tests during the semester (20 questions each, 4 possibilities, 1 answer correct, student need to reach at least 12 points out of 20 in each test). In case you do not pass one of the control tests and its re-sit, you have to pass the final test (so-called Credit test) based on knowledge of the entire semester lectures and practices. The test comprises of 20 questions: 10 test questions (multiple answers can be correct, negative marking is obtained for incorrect answers) + 10 given terms for written explanation. At least 10 points out of 20 are needed to pass.

In case of student's late arrival to the practice or poor activity at the practice, the student is required to write an essay in the length of 2 pages on a given topic. Same for the case of 2nd and any additional absence in practices (excused or unexcused). Find the instructions for essay writing in the Course-related instructions in the IS, bring the essay printed to the teacher who specified the topic and be ready to answer the teacher's questions regarding the topic.

In case of 3 absences, (or more than 3 absences all excused by the Office for Studies within 5 days from the beginning of the absence and introduced to the Information System), it is addressed individually and course-unit credit is awarded only after the proof of the student's knowledge of the entire semester topics (Credit test, see above).

In case of 4 or more unexcused absences, course-unit credit is not awarded.

Language of instruction

English

aVLBI0222p Biology II - lecture

Faculty of Medicine

spring

Extent and Intensity

1/0/0. 4 credit(s). Type of Completion: zk (examination).

Supervisor

prof. Ing. Petr Dvořák, CSc.

Department of Biology - Theoretical Departments - Faculty of Medicine

Course objectives

The main objectives of the course are:

- understanding the mechanisms of cancer development
- understanding the complex taking place during human embryonic development
- acquaintance with the basics of genomics, gene therapy and tissue engineering in current medicine

Learning outcomes

After completing the course the student will be able to:

- explain the nature of cancers with regard to deregulation of cell division, DNA repair and cell death
- explain the effects of some therapies with emphasis on modern medicine (molecular therapies of cancer)
- explain the elementary processes taking place during development of a human body
- express the basic coherence between malfunction in these processes and developmental defects
- explain the basic principles of current methods used in gene therapy and cell therapies
- understand the significance of the human microbiome composition
- be knowledgeable in basic modern approaches to studying various diseases and to personalised medicine (genomics, bioinformatics)

Syllabus

- DNA damage and repair – from molecular mechanisms to clinical significance
- Introduction to cancer biology
- Oncogenes and oncoviruses in cancer transformation
- Tumour suppressor genes and their significance for diagnostics and therapy
- Paradigm of cancer stem cells and implications for anti-cancer therapies
- Gene therapy – targets and strategies of molecular therapies
- Stem cells and tissue engineering – prospects of regenerative medicine
- From a single cell to human I – introduction to developmental biology

- From a single cell to human II – molecular basis of mammalian development in health and disease
- Human genome, genomics and bioinformatics in current biomedicine
- Human microbiome
- Modern approaches in studying macromolecules and their use in current biomedicine

Literature

required literature

- ALBERTS, Bruce. *Essential cell biology*. 4th edition. New York, N.Y.: Garland Science, 2014. xxiii, 726. ISBN 9780815344551.
- *Medical genetics at a glance*. Edited by D. J. Pritchard - Bruce R. Korf. 3rd ed. Chichester, England: Wiley-Blackwell, 2013. 1 online r. ISBN 9781118689028.

Teaching methods

lecture every week

Assessment methods

Lecture attendance is optional. The course of Biology II builds on knowledge gained from Biology I, and is completed with a written examination test taken on computers. The test contains questions based on the topics discussed in the lectures, seminars and practices of both semesters. The students are expected to be able to autonomously solve assigned problems and to derive the solutions using their own thinking – based on the theory discussed during both semesters and supplemented by the recommended reading. The test contains 60 questions in total; at least 30 points are needed to pass.

Language of instruction

English

aVLHE0221c Histology and Embryology I - practice

Faculty of Medicine

spring

Extent and Intensity

0/3/0. 3 credit(s). Type of Completion: z (credit).

Supervisor

doc. MVDr. Aleš Hampl, CSc.

Department of Histology and Embryology - Theoretical Departments - Faculty of Medicine

Contact Person: doc. MUDr. Miroslava Sedláčková, CSc.

Course objectives

Course objectives

At the end of the course students should be able to:

1. Describe tissue processing for light and electron microscopy.
2. Understand and explain the structure of a cell, basic structural principles and function of connective tissues, features of epithelial tissue, structure of different types of muscle tissue, structure and function of nervous tissue.
3. Identify tissue types in histologic slides.
4. Characterize microscopic structure of some organs of human body and explain correlations of tissues within organs.
5. Describe gamete development, explain principle of meiosis and regulation of gametogenesis.
6. Define the early embryonic development as well as development of fetal membranes, placenta and umbilical cord.
7. Characterize stages of embryonic development.

Learning outcomes

At the end of the course students should be able to:

1. Describe tissue processing for light and electron microscopy.
2. Understand and explain the structure of a cell, basic structural principles and function of connective tissues, features of epithelial tissue, structure of different types of muscle tissue, structure and function of nervous tissue.
3. Identify tissue types in histologic slides.
4. Characterize microscopic structure of some organs of human body and explain correlations of tissues within organs.
5. Describe gamete development, explain principle of meiosis and regulation of gametogenesis.
6. Define the early embryonic development as well as development of fetal membranes, placenta and umbilical cord.
7. Characterize stages of embryonic development.

Syllabus

- 1. Introduction, organization of practicals, teaching aids. **Overview of histological methods.** Tissue processing for light and electron microscopy - explanation and film. Basic histochemistry and immunocytochemistry.
- 2. **Cytology:** Ultrastructure of the cell nucleus during interphase. Ultrastructure of cell organelles I (mitochondria, the Golgi apparatus, the endoplasmic reticulum, ribosomes, lysosomes).
- 3. Ultrastructure of cell organelles II (peroxisomes, and the centriol). Cell inclusions. The arrangement of cell surfaces: apical, lateral, and basal ones. Intercellular junctions: adhering, occluding, and communicating ones.
- 4. General embryology I. Aids: Set of embryological schemes and pictures (I).
- 5. General embryology II. Aids: Set of embryological schemes and pictures (II).
- 6. **General histology:** Use of the light microscope, common faults in microscopy. Results of basic staining methods in histology: Hematoxylin-eosine /HE/ (hepar), hematoxylin–eosine-saffron /HES/ (esophagus), AZAN (prostate), impregnation (cerebellum). Connective tissue proper - classification and examples. Slides: Funiculus umbilicalis, Esophagus, Posterior segment of the eye, Lien, Aorta.

- 7. Supporting tissues: cartilage and bone. Histogenesis of the bone tissue (ossification). Slides: Trachea, Auricula, Elastic cartilage, Lamellar bone, Chondrogenic ossification.
- 8. Epithelial tissue: epithelial membranes (covering epithelia) and glandular epithelium. Slides: Ren, Vesica fellea, Trachea, Esophagus, Ureter, Palpebra, Skin from the finger tip.
- 9. Glandular epithelium. Slides: Intestinum tenue, Glandula parotis, Glandula submandibularis.
- 10. Nerve tissue. Slides: Cortex cerebri, Cerebellum, Medulla spinalis, Ganglion spinale, Peripheral nerve, Motor end plate.
- 11. Muscle tissue. Slides: Apex linguae, Cardiac muscle tissue Intestinum tenue.
- 12. Blood cells: Preparation of blood smears and their staining. Cytology of formed elements of blood. Differential white cell count (dWCC) - average values, abnormalities and terminology of dWCC. Slide: A smear of peripheral blood stained by Pappenheim's method. Credits.

Literature

recommended literature

- VAŇHARA, Petr, Miroslava SEDLÁČKOVÁ, Irena LAUSCHOVÁ, Svatopluk ČECH and Aleš HAMPL. *Guide to General Histology and Microscopic Anatomy*. 1. vyd. Brno: Masarykova univerzita, 2017. ISBN 978-80-210-8453-7.
- MESCHER, Anthony L. *Junqueira's basic histology : text and atlas*. 13th ed. New York: McGraw-Hill Medical, 2013. xi, 544. ISBN 9781259072321.

not specified

- EROSCHENKO, Victor P. *Di Fiore's atlas of histology with functional correlations*. 9th ed. Philadelphia: Lippincott Williams-Wilkins, 2000. xv, 363. ISBN 0683307495.

Teaching methods

Content of this course includes study of slides and electron micrographs in microscopic hall as well as class discussion on the base of materials in the text book. Electronic textbooks are presented also in: <http://www.med.muni.cz/histol/atlas.htm>

Assessment methods

Testing of knowledge: Student must prove sufficient level of knowledge by written test examination. Each student completes 4 partial tests during semester. Tests are evaluated by point for correct answer. More than half number of correct answers (points) is evaluated as "Passed". All of these tests must be successful. In case of failure, only 1 resit is possible. There is condition 4 from 4 (ie. 4 P / 4 regular tests) or 4 from 5 (ie. 3 P / 4 regular tests + 1 P / 1 resit). If student does not fulfill this condition, credit test follows in the relevant exam period. This test covers all topics studied during semester. In case of failure in credit test, credit will not be given and student **must enroll the course again**.

Conditions for obtaining credit: 1. Attendance at all practical exercises (100% participation, all absences must be regularly excused (in IS) and substituted).

2. Successful completion of all tests.

3. Submission of all protocols (correctly completed forms of protocols signed by teacher).

Language of instruction

English

aVLHE0221p Histology and Embryology I - lecture**Faculty of Medicine**

spring

Extent and Intensity

2/0/0. 0 credit(s). Type of Completion: z (credit).

Supervisor

doc. MVDr. Aleš Hampl, CSc.

Department of Histology and Embryology - Theoretical Departments - Faculty of Medicine

Contact Person: doc. MUDr. Miroslava Sedláčková, CSc.

Course objectives

Course objectives

At the end of the course students should be able to:

1. Understand and explain the structure of a cell, basic structural principles and function of connective tissues, features of epithelial tissue, structure of different types of muscle tissue, structure and function of nervous tissue.
2. Identify tissue types in histologic slides.
3. Characterize microscopic structure of individual organs of human body and explain correlations of tissues within organs.
4. Describe gamete development, explain principle of meiosis and regulation of gametogenesis.
5. Define the early embryonic development as well as development of fetal membranes, placenta and umbilical cord.
6. Characterize stages of embryonic development, describe the development of individual organ systems of human body.
7. Explain the mechanism of the origin of some developmental anomalies.

Learning outcomes

At the end of the course students should be able to:

1. Describe tissue processing for light and electron microscopy.
2. Understand and explain the structure of a cell, basic structural principles and function of connective tissues, features of epithelial tissue, structure of different types of muscle tissue, structure and function of nervous tissue.
3. Identify tissue types in histologic slides.
4. Characterize microscopic structure of some organs of human body and explain correlations of tissues within organs.
5. Describe gamete development, explain principle of meiosis and regulation of gametogenesis.
6. Define the early embryonic development as well as development of fetal membranes, placenta and umbilical cord.
7. Characterize stages of embryonic development.

Syllabus

- 1. Introduction. The object and significance of histology. Relevance of histology to other biomedical disciplines. History, current state, and future of histology. Methodologies to study a structure of cells and tissues. **Cytology:** The cell - definition, characteristics, compartmentalization. Cell nucleus - ultrastructure and function, chromosomes, nucleolus. Introduction
- 2. Organelles - structure, localization, and function. Cell inclusions and pigments. Cytoskeleton - microfilaments, intermediate filaments and microtubules. Cell surface structures and intercellular bonds. Cell division cycle. Cell differentiation, cell migration, organization of cells into tissues and organs - general aspects.
- 3. **General embryology.** Definition. The object and significance of embryology. Overview of the early human development: The phases of the human ontogeny. Human gametes - their structure, physiology and origin (gametogenesis). Differences between spermatogenesis and oogenesis. Transport of gametes. Sperm capacitation. Fertilization and cleavage. Activation of the embryonal genome. Nuclear transfer. Morula and blastocyst. Embryonic stem cells. Outline of the implantation. Abnormal sites of implantation (extrauterine pregnancies).
- 4. The development of the germ disc: origin of the intraembryonic mesoderm and notogenesis (development of the chorda dorsalis). Somites and their derivatives. Outline of the development of fetal membranes: amniotic sac, chorion, and placenta. Function of the placenta. The umbilical cord. Anomalies of the placenta and umbilical cord. Development of external shape of the embryo and fetus. The rule of Hasse. Uterine growth during pregnancy. Parturition. Marks of the mature and full-term fetus. Position, posture and presentation of the fetus. Multiple pregnancy: mono- and dizygotic twins; arrangement of fetal membranes in twins.
- 5. **General histology.** Tissues - definition, their origin, and classification. Connective and supporting tissue - general characteristics, their components and classification. The connective tissue proper - types, main distribution, and function.
- 6. Supporting tissues - cartilage and bone - types, main distribution, and function. Histogenesis and regeneration of connective tissues.
- 7. Epithelial tissue - definition, classification, and histogenesis. Epithelial membranes and glandular epithelium - an overview. Characteristics of glandular cells. Absorptive, respiratory, and sensory epithelia.
- 8. Neural tissue - general characteristics and classification. Neurons – structure and function. Synapse. Neuroglial cells - types and function. Sheaths of nerve fibres. Conduction of nerve impulses. Histogenesis and regeneration of the neural tissue.
- 9. Muscle tissue - general characteristics and classification. Smooth muscle tissue. Skeletal muscle tissue. Ultrastructure of the myofibrils. Mechanism of the muscle contraction. Cardiac muscle tissue. Inervation and vascularization of the muscle. Muscle histogenesis and regeneration.
- 10. Blood cell morphology: Erythrocytes, leukocytes and thrombocytes. Differential white cell count. Prenatal and postnatal hematopoiesis. Erythropoiesis, granulopoiesis, thrombopoiesis.

- 11. **Microscopic anatomy and special embryology.** Cardiovascular system. Microscopic structure of the heart, excitomotoric system - its structural peculiarities. Blood vessels - arteries and veins - structural differences. Capillary bed. Lymph vessels and capillaries.
- 12. Development of the heart. Primitive blood circulation in the embryo. Fetal blood circulation.

Literature

recommended literature

- MESCHER, Anthony L. *Junqueira's basic histology : text and atlas*. 13th ed. New York: McGraw-Hill Medical, 2013. xi, 544. ISBN 9781259072321.
- MOORE, Keith L., T. V. N. PERSAUD and Mark G. TORCHIA. *Before we are born : essentials of embryology and birth defects*. 9th edition. Philadelphia: Elsevier, 2016. xix, 361. ISBN 9780323313377.

not specified

- LOWE, James S. and Peter G. ANDERSON. *Stevens and Lowe's Human Histology*. 4th. : Elsevier, 2015. ISBN 978-0-7234-3502-0.
- OVALLE, William K., Patrick C. NAHIRNEY and Frank H. NETTER. *Netter's essential histology*. 2nd ed. Philadelphia, PA: Elsevier/Saunders, 2013. xv, 517. ISBN 9781455706310.
- MOORE, Keith L., T. V. N. PERSAUD and Mark G. TORCHIA. *The developing human : clinically oriented embryology*. 9th ed. Philadelphia, PA: Saunders/Elsevier, 2013. xix, 540. ISBN 9781437720020.
- SADLER, T. W. *Langman's medical embryology*. 12th ed. Philadelphia: Wolters Kluwer Health/Lippincott Williams & Wilkins, 2012. xiii, 384. ISBN 9781451144611.

Teaching methods

lecture

Assessment methods

Students will pass examination after finishing Histology and Embryology II - lecture. All informations about required knowledge and the course of examination are on web site:

<http://www.med.muni.cz/histology/education>

Language of instruction

English

aVLLT0222c Basic Medical Terminology II - practice

Faculty of Medicine

spring

Extent and Intensity

0/1/0. 1 credit(s). Type of Completion: z (credit).

Supervisor

Mgr. Natália Gachallová
Language Centre, Faculty of Medicine Division - Language Centre
Contact Person: Mgr. Libor Švanda, Ph.D.

Course objectives

Greek-Latin medical terminology is essential means for understanding the professional medical terminology. The curriculum conveys both theoretical and practical concepts used in medical documentation and is conceived as a preparatory course *sui generis*, introducing the students into the study of medicine by means of its language. In the first semester, the focus is put on the understanding of clinical terminology, word compounding, and terms used in medical prescriptions. The content of the course is fully derived from the actual needs of the professional practice. In the first place, it provides students with instruction on how to apply Latin and/or Greek quickly and purposefully, ie. the student are required to master the semantic aspect of terms, the grammatical forms and their functions. It also systematically develops student's ability to independently analyze medical terms, solve terminological problems, and form medical terms. Last but not least, the course also introduces the wider historical and linguistic foundations of medical terminology as well as its general theoretical contexts.

Learning outcomes

At the end of the course students will be able to:

- apply relevant Latin and Greek medical terms and expressions correctly and with understanding;
- recognize and explain grammatical concepts and categories relevant to the acquisition of Greek-Latin medical terminology;
- explain syntactic structure of complex terms;
- recognize the semantic structure of selected anatomical and clinical compound terms;
- form compound words applying the most used word-formation principles and guess the meanings of unknown terms based on the semantic, grammatical, and logical relations;
- understand complex anatomical terms and clinical diagnoses;
- write a medical report using common abbreviations and following the conventional structure;
- write a medical prescription using conventional formulae, understand the function of basic types of medications based on the terminology.

Syllabus

- **Basic medical terminology - practice.** Syllabus.
- *1st week:* Revision of the 1st semester's curriculum with focus on the adjectives of 3rd declension.
- *2nd week:* Comparison of adjectives. Diminutive forms.
- *3rd week:* Basic word-formation principles. Expressing position in medical terminology.
- *4th week:* Numerals in clinical diagnose. Latin and Greek prefixes derived from prepositions.
- *5th week:* Greek roots referring to anatomical structures and bodily liquids.
- *6th week:* Progress test I. Greek roots referring to pathological states and diseases.
- *7th week:* Greek roots referring to medical interventions and examinations.

- *8th week:* Revision of compound words using Greek roots.
- *9th week:* Progress test II. Specific pathological states and terms related to them.
- *10th week:* Structure of Czech medical prescription. Most common formulae used in pharmacology.
- *11th week:* Revision of medical prescriptions. Forms of medications.
- *12th week:* Structure of dissection protocol. Final revision.
- *13th week:* Dissections.
- *14th week:* Dissections.

Literature

required literature

- PRUCKLOVÁ, Renata and Marta SEVEROVÁ. *Introduction to Latin and Greek terminology in medicine*. 3rd, rev. ed. Praha: KLP, 2012. xii, 115. ISBN 9788086791241.

recommended literature

- EHRLICH, Ann and Carol L. SCHROEDER. *Medical terminology for health professions*. 6th ed. Clifton Park, NY: Delmar, Cengage Learning, 2009. xxvi, 582. ISBN 9781418072520.

Teaching methods

lectures, presentations, translation and grammar exercises, drills, group activities, authentic diagnoses

Assessment methods

Requirements for gaining the credit: regular class attendance, active participation in class, preparation for classes, passing the credit test (60-70% based on the passing/failing the progress tests) - see the study requirements. Only one unexcused absence will be tolerated; further absences must be properly excused (i.e. via the Study Department of the Faculty of Medicine).

Language of instruction

English

aVLLT0222s Basic Medical Terminology II - seminar

Faculty of Medicine

spring

Extent and Intensity

0/1/0. 2 credit(s). Type of Completion: zk (examination).

Supervisor

Mgr. Natálie Gachallová
Language Centre, Faculty of Medicine Division - Language Centre
Contact Person: Mgr. Libor Švanda, Ph.D.

Course objectives

Greek-Latin medical terminology is one of the relevant means for acquisition of the target knowledge of medical students. The tuition is of both theoretic and practical character, conceived as a preparatory course *sui generis*, introducing the students into the study of medicine by means of its language.

The content of tuition is, like the set of knowledge postulated in the examination, exclusively determined by the needs of the discipline and medical practice. In the first place it provides such knowledge of Latin and/or Greek as enables the student to master quickly and purposefully the semantic aspect of terms, their grammatical form, and word-forming structure. Simultaneously, it provides a systematic instruction to independent solution of current terminological problems consisting in understanding of the technical content of the terms and in the formation of medical terms. Besides, it opens a view of the wider historical and linguistic fundamentals of medical terminology as well as its general theoretical contexts.

Learning outcomes

At the end of the course students should be able to:
use Latin and Greek-Latin medical terminology and expressions correctly and understand them;
explain and apply grammatical devices and rules relevant for acquisition of Greek-Latin medical terminology;
recognize the syntactic structure of complex terms;
describe the semantic structure of one-word terms;
form compound words applying the most used word-formation principles;
translate selected expressions from anatomy, pre-clinical and clinical fields of study, medical prescriptions, and pharmacology;
guess the meanings of unknown terms on the basis of semantic, grammatical and logical relations.

Syllabus

- **BASIC MEDICAL TERMINOLOGY - seminar.** Syllabus.
- *1st week:* Discussing common mistakes in the credit test. Practicing problematic issues.
- *2nd week:* Comparatives, superlatives, and diminutive forms in anatomical nomenclature. Authentic diagnoses focused on fractures.
- *3rd week:* Medical terms referring to position: adjectives, Latin and Greek prefixes and suffixes, Latin comparatives and superlatives. Student presentation on position terminology.
- *4th week:* Muscle nomenclature. Student presentation on terms denoting facial expressions.
- *5th week:* Expressing resemblance in shape and form in anatomical nomenclature. Student presentation on colours in medical terminology.
- *6th week:* Progress test I. Terms specifying the progress of a disease.
- *7th week:* Diseases and the relevant medical interventions and examinations. Student presentation on the terms denoting inflammations and types of fever.

- *8th week:* Expressing extent and degree in medical terminology. Student presentation on terms related to particular ages of human life.
- *9th week:* Progress test II. Working with authentic medical reports containing compound words.
- *10th week:* How to write a medical prescription. Basic types of medications and their functions.
- *11th week:* Expressing quality and quantity in medical terminology. Student presentation on terms specifying types of pulses.
- *12th week:* Working with an authentic dissection protocol. Student presentation on terms related to death.
- *13th week:* Dissections.
- *14th week:* Dissections.

Literature

required literature

- PRUCKLOVÁ, Renata and Marta SEVEROVÁ. *Introduction to Latin and Greek terminology in medicine*. 3rd, rev. ed. Praha: KLP, 2012. xii, 115. ISBN 9788086791241.

recommended literature

- EHRLICH, Ann and Carol L. SCHROEDER. *Medical terminology for health professions*. 6th ed. Clifton Park, NY: Delmar, Cengage Learning, 2009. xxvi, 582. ISBN 9781418072520.

Teaching methods

lectures, presentations, translation and grammar exercises, drills, group activities, authentic diagnoses

Assessment methods

Requirements for gaining the credit: 1) submitting an in-class interactive activity aimed at clarification of the terms related to selected topics 2) passing the oral exam examining two aspects of medical terminology: a) pharmacological terms in medical prescription; b) clinical terms in medical documentation with emphasis on compound words of Greek origin. Students are admitted to oral exam only after fulfilling the requirements of aVLLT0222c (attendance, passing the credit test)

Language of instruction

English

aVLCJ0282 Czech Language for Foreigners II - practice

Faculty of Medicine

spring

Extent and Intensity

0/3/0. 4 credit(s). Type of Completion: zk (examination).

Supervisor

PhDr. Ivana Rešková, Ph.D.

Language Centre, Faculty of Medicine Division - Faculty Branches of University Departments - Faculty of Medicine

Contact Person: Mgr. Veronika Dvořáčková, Ph.D.

Course objectives

The aim of the tuition is working knowledge of the Czech language on the A2 level of the "Common European Framework of Reference" (CEFR) checked by an examination. Students will also learn the vocabulary and phrases from the healthcare at the level of A1 and A2 according to the CEFR. The main aim of the course Czech for Foreigners is to teach students communicate with patients in Czech without any help of English speaking doctors or interpreters and independently write case history.

Learning outcomes

First year students:

- can understand vocabulary and basic phrases related to students, their families, and their immediate specific surrounding, provided people speak clearly and at a slow rate.
- communicate in common routine tasks, such as shopping, accommodation, using public transport, orientation in the city, asking the way, being able to describe their place of living and people they know by simple phrases and sentences.
- they should also be able to fill in forms with personal data, such as name, nationality and address when applying for residence accommodation.
- know vocabulary (parts of body) and phrases from the healthcare at the level of A1 and A2 according to the CEFR.

Syllabus

- **Syllabus of Czech for Foreigners II.**
- 1st week: REVISION LESSON. UNIT 6/1: *Conversation*: Daily routine. Talking about time. What did you do today? *Grammar*: Past tense I-regular forms.
- 2nd week: UNIT 6/2: *Conversation*: Where were you? *Grammar*: Past tense II(irregular forms). Reflexive verbs: ses, sis. The second position in Czech sentences. Locative singular.
- 3rd week: PROGRESS TEST 1 (UNITS 1-6). LESSON 6/3: *Conversation*: Do you know who it was? *Grammar*: Time expressions. Verbs ZNÁT a VĚDĚT. Countries and nationalities.
- 4th week: UNIT 7/1: *Conversation*: Houses and flats. Furniture. *Grammar*: Nominative and accusative plural (M, F, N).
- 5th week: UNIT 7/2: *Conversation*: Looking for accommodation. *Grammar*: Numerals dva-dvě. The date: ordinal numbers, months, seasons.
- 6th week: PROGRESS TEST 2. UNIT 8/1: *Conversation*: Planning our weekend. *Grammar*: The future tense. Human body I (Head).
- 7th week: UNIT 8/2: *Conversation*: Free time activities. *Grammar*: KAM? Expressing directions. Prepositions NA-DO-K/KE). Human body II (Neck and Trunk).

- 8th week: PROGRESS TEST 3 (VIDEO). REVISION Units 6-8. *Conversation*: What did you do yesterday? Plan your future. Human body I and II. *Grammar*: Revision.
- 9th week: UNIT 9/1: *Conversation*: Describing of Human body. What do we look like? *Grammar*: Nominative plural of body parts. Personal pronouns in the accusative and dative (Bolí/bolelo mě, je mi dobře/špatně.) Human body III (Internal and genital organs).
- 10th week: UNIT 9/2: *Conversation*: At the doctor's. At the pharmacy. *Grammar*: Accusative object-centered constructions. Prepositions with the accusative (na, pro, za, o). Human body IV (Extremities).
- 11th week: PROGRESS TEST 4. UNIT 10/1: *Conversation*: The place where we live. *Grammar*: The genitive singular. Prepositions with the genitive. Human body V (Skeleton).
- 12th week: PROGRESS TEST 5 (ORAL). UNIT 10/2: *Conversation*: Kde jsi byl? Kam půjdeš/pojedeš? U lékaře. Lidské tělo I-V. *Grammar*: Revision.
- 13th week: *Conversation*: Travelling. Plans for summer holiday. *Grammar*: Revision.
- FINAL WRITTEN EXAM (May, 18).
- 14th-15th week: DISSECTION PRACTICE.

Literature

required literature

- HOLÁ, Lída. Český krok za krokem 1. Praha: Akropolis 2016. 260 s. ISBN 978-80-7470-129-0.
- HOLÁ, Lída a kol. Český krok za krokem 1. Pracovní sešit (Lekce 1-12). Praha: Akropolis 2016. 160 s. ISBN 978-80-7470-133-7.
- ČERMÁKOVÁ, Iveta. *Talking medicine : Czech for medical students*. 3., rev. English ed. Prague: Karolinum Press, 2012. 261 s. ISBN 9788024621043.

recommended literature

- GRUNDOVÁ, Dominika. *Needs of Patients. Czech-English Phrasebook for Beginners*. 2., revid. vyd. Praha: Eurolex Bohemia, 2004. 104 pp. ISBN 80-86432-86-6.

Teaching methods

The tuition is realised in the form of practical courses. The following teaching methods are used: class discussion, roleplay, work in groups, reading, listening, writing HW (including Projects), word study.

Assessment methods

The tuition is realised in the form of practical courses. The students' presence in these courses is strictly required; a maximum of two unexcused absences is tolerated. Students are allowed to substitute a maximum of TWO classes with another group. Substitutions are not possible in the weeks when Progress Test take place. Students must inform the teacher of the group in which they intend to substitute their missed class in writing in advance. If they fail to do so, they will not be allowed to attend the class. If a student has more than two unexcused absences, they will not be allowed to take the Final test. The tuition is finished by an end-of-term examination (ETE) consisting of a WRITTEN and an ORAL part. Passing the examination is conditioned by proper attendance, active participation in practical courses, sitting for Progress Tests and successful passing of written and oral

exams. The basic limit for passing all tests is 70%. In case of passing all class tests, which are obligatory for all students, the basic limit in the written exam is reduced by 10%. Without successful passing the written exam students will not be allowed to sit for the oral part! Any copying, recording or leaking tests, use of unauthorized tools, aids and communication devices, or other disruptions of objectivity of exams (credit tests) will be considered non-compliance with the conditions for course completion as well as a severe violation of the study rules. Consequently, the teacher will finish the exam by awarding grade "F" in the Information System.

Language of instruction

English