

Angol verzió

Semmelweis University, Faculty of Medicine - single, long-cycle medical training

Name of the host institution (and any contributing institution):

Patológiai, Igazságügyi és Biztosítási Orvostani Intézet

Name of subject: Patológia I.

in English: Pathology I

in German: Allgemeine und spezielle Pathologie I

Credit value: 8

Semester: 5. szemeszter

(in which the subject is taught according to the curriculum)

Hours per week	Lecture	Practical lesson	Seminar
8	4	4	0

Hours per semester	Lecture	Practical lesson	Seminar
0	0	0	0

Type of course:

obligatory

Academic year:

2024/25

Language of instruction (for optional and elective subjects):

Course code:

AOKPIB1110_1A

(in the case of a new course, to be completed by the Dean's Office, following approval)

Course coordinator name: Dr. Kiss András (igazgató)

Course coordinator location of work, telephone availability: Department of Pathology, Forensic and Insurance Medicine, +36208259664

Course coordinator position:director

Course coordinator Date and number of habilitation:Dr. Kiss András 2007. május 30.

Anyakönyvi szám: 248

Objective of instruction and its place in the curriculum:

The aim of the subject is demonstrating diagnostic pathology works and the application of its basics and enter clinico-pathology aspect to the general point of view of the future medical doctors. Subject contains the entire general and specific macroscopic and microscopic pathology. The significance of theoretical general and specific pathology is demonstrated by practical examples. Since only the top

important chapters of general pathology are presented on theoretical lectures, students receive organ-specific experience from the first practices, which support later learning of the medicine. During organ-specific theoretical lectures, we underline the recognition of clinico-pathology associations, which is the base of later clinical subject.

Method of instruction (lecture, group work, practical lesson, etc.):

Lectures and practical lessons.

Competencies acquired through completion of course:

Basic knowledge about development and process of the diseases, application of medical terminology, recognition of basic microscopic, macroscopic alterations and clinico-pathology associations.

Course outcome (names and codes of related subjects):

Orvosi Mikrobiológia I., Orvosi Mikrobiológia II., Transzlációs Medicina - Kórélettan II., , Kardiológia, szívsebészet, angiológia és érsebészet, Traumatológia és ortopédia, , Endokrin Onkológia, Laboratóriumi medicina, Farmakológia II, , Neurológia szigorló évi gyakorlat, Idegyógyászat és idegsebészet,

Prerequisites for course registration and completion: (CODE):

Medical Physiology II., Macroscopic Anatomy and Embryology II. , Microscopic Anatomy and Embryology II.

In the case of multi-semester courses, position on the possibility of and conditions for concurrent registration:

In accordance with the provisions of the Study and Examination Regulations , with the individual consent of the head of the educational-research unit that has announced the subject parallel enrolment is possible.

The number of students required to start the course (minimum, maximum), student selection method:

Maximum of 120 students.

Detailed course syllabus (if the course can be divided into modules, please indicate): (Theoretical and practical instruction must be broken down into hours (weeks), numbered separately; names of instructors and lecturers must be listed, indicating guest lecturers/instructors. It cannot be attached separately! For guest lecturers, attachment of CV is required in all cases!)

Week 1

I/1. Introduction / Dr. András Kiss

- Intracellular storage

I/2. Clinicopathology: Clinical and forensic aspects of natural - unnatural death

I/3. Cell injury / Dr. András Kiss

- Reversible cell injury (hydropic swelling, atrophy, hypertrophy, hyperplasia, metaplasia, dysplasia).
- Irreversible cell injury (necrosis, apoptosis, ischemic cell injury, external damaging agents, calcification, hyalinization, aging).

Week 2

I/4. Hemodynamic disorders I. / Dr. Lilla Madaras

- Basics of hemodynamics.
- Hemorrhage, active and passive hyperemia.
- Disorders of fluid homeostasis and electrolytes.
- Edema.
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I/5. Clinicopathology of the organ specific complications of haemodynamic disorders (brain edema, lung edema, congestion of internal organs)

I/6. Hemodynamic disorders II. / Dr. Lilla Madaras

- Thrombosis, embolism. Infarction. Shock.

Week 3

I/7. Inflammation I. / Dr. István Kenessey

- Definition.
- Symptoms.
- Vascular permeability.
- Inflammatory mediators and their origin.
- Cellular recruitment.

- Acute inflammation.
- Systemic manifestations of inflammation.
- Inflammation of avascular tissues.
- Wound healing, regeneration and repair.
- Classification of cells and tissues according to their regenerative capability.
- Extracellular matrix.
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I/8. Clinicopathology of sepsis, abscess, purulent bronchopneumonia, lobar pneumonia

I/9. Inflammation II. / Dr. Gábor Lotz

- Chronic inflammation.
- Fibrosis, scar formation.
- Granulomatous inflammation: (tuberculosis, syphilis. etc.)

Week 4

I/10. Cardiovascular pathology I. / Dr. Tibor Glasz

- Structure of vessels.
- Atherosclerosis.
- Aneurysms.
- Hypertensive vascular disease.
- Inflammatory disorders of blood vessels.
- Microvascular disease.
- Diseases of the veins and lymphatic vessels.
- Vascular tumors.
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I/11. Clinicopathology of heart infarction (acute, chronic, complications)

I/12. Cardiovascular pathology II. / Dr. Tibor Glasz

- Endocarditis, myocarditis, pericarditis.
- Rheumatic heart disease.
- Ischemic heart disease

Week 5

I/13. Cardiovascular pathology III. / Dr. Tibor Glasz

- Congenital heart diseases.

- Cardiomyopathies.
- Heart failure.
- Systemic diseases involving the heart.
- Cardiac tumors.

I/14. Clinicopathology of pericarditis and endocarditis

I/15. Neoplasia I. / Dr. András Kiss

- Neoplasia - definition.
- Characteristics of benign and malignant tumors.
- Histological classification of tumors.
- Grading.

Week 6

I/16. Neoplasia II. / Dr. István Kenessey

- Causes of neoplasia.
- Epidemiology.
- Chemical, physical and biological carcinogenesis.
- Prevention.
- Screening.
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I/17. Clinicopathology of tumor progression and metastasis

I/18. Neoplasia III. / Dr. József Tímár

- Molecular mechanisms of tumor development: protooncogenes, oncogenes, tumor suppressor genes, growth factors.

Week 7

I/19. Neoplasia IV. / Dr. József Tímár

- Tumor growth, tumor progression, metastasis.
- Familial cancer

I/20 Clinicopathology of synchronous and metachronous tumours, Cancer of Unknown Primary (CUP)

I/21. Neoplasia V. / Dr. Janina Kulka

- Prognostic factors in tumor pathology.
- Staging and grading of tumors.
- TNM. Handling of surgical biopsy material

Week 8

I/22. Childhood tumors / Dr. Judit Halász

- Hematologic and solid childhood tumors
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I/23. Clinicopathology of childhood tumors

I/24. Methods of pathology I. / Dr. Tibor Várkonyi

- Grossing, HE and special staining techniques, immunohistochemistry. FNAB, core biopsy

Week 9

I/25. Methods of pathology II. / Dr. András Kiss

- Diagnostic parameters, requirements, which guide the clinical protocols.
- Molecular diagnostics of tumors.
- Targeted therapy

I/26. Clinicopathology: Molecular pathology diagnostics - Comprehensive Cancer Panel, BRCA, POLE, NTRK

I/27. Genetic and developmental disorders. Gene pathology I. / Dr. András Kiss

- Single-gene abnormalities.
- Autosomal dominant and recessive inheritance, sex-linked disorders.
- Lysosomal storage disease.

Week 10

I/28. Genetic and developmental disorders. Gene pathology II. / Dr. András Kiss

- Chromosomal abnormalities.
- Morphogenic disorders, malformations, multifactorial inheritance.
- Prenatal diagnosis. Familial diseases and symptoms.
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I/29. Clinicopathology of autoimmune liver diseases

II/30. Immunopathology / Dr. András Kiss

- Constituents of the immune system.
- Hypersensitive reactions.
- Allergy.
- Transplantation.
- Immunodeficiency.
- AIDS.

Week 11

I/31. Autoimmune diseases / Dr. Tibor Glasz

- Etiology.
- Monosystemic diseases (e.g. chr. atrophic gastritis, myasthenia gravis, Graves disease, Hashimoto thyroiditis, Addison disease., Insulin-dependent diabetes mellitus, multiple sclerosis) and Oligo- polysystemic diseases (e.g. SLE, Sjögren sy, RA, scleroderma, dermatomyositis)
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I/32. Clinicopathology of rejection after kidney and liver transplantation

I/33. Hematopathology I. / Dr. Ildikó Illyés

- Hemopoetic system.
- Normal function (bone marrow, lymph nodes, spleen).
- Morphology and immunologic evaluation.
- Disorders of platelets and coagulation.
- Anemias, polycythemia.
- Neutrophilia.
- Proliferative disorders of mast cells.
- Monocytosis.

- Sinus histiocytosis.
- Benign disorders of lymphoid cells.

Week 12

I/34. Hematopathology II. / Dr. Zsófia Kramer

- Acute myeloproliferative syndromes (acute leukaemias).
- Chronic myeloproliferative syndromes (CML, myelofibrosis, thrombocytemia).
- Acute and chronic lymphocytic leukemias.
- Disorders of the spleen.

I/35. Clinicopathology: Manifestation of haematological diseases in biopsy specimens

I/36. Hematopathology III. / Dr. Benedek Gyöngyösi

- Lymphomas (Hodgkin, non-Hodgkin).
- Metastatic tumors in bone marrow and lymph nodes.

Week 13

I/37. Infectious diseases / Dr. Gábor Lotz

- Viral diseases (tick-borne viruses, polio, smallpox, herpes, CMV, EBV, rubella, varicella, mumps, influenza), Rickettsiae, Spirochetes.
- Bacteria (tularaemia, pertussis, legionella, brucellosis, listeriosis, clostridial infections (tetanus, botulism), Streptococci) Actinomyces. Mycobacteria (tbc, leprosy).
- Protozoa (malaria, toxoplasmosis, amebiasis)

I/38. Clinicopathology of infectious diseases

I/39. Environmental and nutritional pathology / Dr. Roland Istók

- Smoking, alcoholism, drugs.
- Iatrogenic injuries.
- Environmental chemical and physical factors.
- Obesity, protein malnutrition, vitamins

Week 14

I/40. Bones and joints / Dr. Gabriella Arató (Department of Pathology and Experimental Cancer Research)

- Structure of the bone and cartilage.
- Osteogenesis.
- Growth and maturation disorders of the skeleton.
- Aseptic bone necrosis.
- Reactive osteogenesis.
- Osteomyelitis and specific inflammatory diseases.
- Metabolic disorders.
- Tumors and tumor-like lesions of the bones and joints

I/41. Clinicopathology of soft tissue tumors

I/42. Clinicopathology

Practices

Practice 1- Introduction

- Safety rules
- Digital teaching system
- Teleconsultation
- E-school

Practice 2- Cell injury, adaptation, storage disorders

- Coagulative necrosis,
- Liquefactive necrosis
- Apoptosis
- Hypertrophy
- Hyperplasia
- Fatty degeneration
- Amyloidosis
- Infiltratio adiposa myocardii
- Bronchus - squamous metaplasia

Practice 3- Hemodynamic disorders I.

- Acute congestion - pulmonary edema
- Chronic pulmonary congestion
- Hemosiderin in alveolar macrophages ("heart failure cells")

- Chronic congestion in the liver (“nutmeg liver”)
- Shock, DIC

Practice 4 - Hemodynamic disorders II.

- Thrombus
- Fat embolism
- Anemic infarction - kidney
- Hemorrhagic infarction - lung

Practice 5- Inflammation, cell repair

- Acute appendicitis
- Fibrinous pericarditis
- Granulation tissue
- Foreign body granuloma
- Rheumatic myocarditis

Practice 6- Cardiovascular diseases

- Arteriosclerosis
- Atherosclerosis
- Acute myocardial infarction
- Myocardial infarction - healing
- Endocarditis
- Viral myocarditis
- Temporal arteritis
- Kaposi-sarcoma

Practice 7- Neoplasia I

- Squamous metaplasia
- Condyloma (LSIL)
- CIN 3 (HSIL)
- Invasive carcinoma

Practice 8- Neoplasia II. (Benign and malignant tumors)

- Squamous papilloma
- Squamous cell carcinoma
- Adenoma
- Adenocarcinoma
- Lymph node metastasis
- Liver metastasis

Practice 9- Neoplasia III. (Soft tissue and childhood tumors)

- Leiomyoma
- Leiomyosarcoma
- Osteosarcoma

- Wilms tumor
- Neuroblastoma
- Mature teratoma
- Fascitis nodularis
- Desmoid fibromatosis
- Rhabdomyosarcoma
- Liposarcoma

Practice 10- Biopsy techniques, protein- and DNA-based diagnostics

- Cytology smear
- Core needle biopsy
- Biopsy by endoscopy
- Frozen section
- Special stains
- Immunohistochemistry
- FISH
- Polypus nasi
- Asthma bronchiale
- Acut rejectio
- Lupus nephritis
- Scleroderma

Practice 11- Hematopathology I.

- Reactive lymphadenopathy
- Hodgkin's lymphoma
- Nodal non-Hodgkin's lymphoma
- Extranodal non-Hodgkin's lymphoma
- Multiple myeloma

Practice 12- Practical exam

Practice 13- Hematopathology II.

- Megaloblastos vércépzés
- AML
- CML
- Myelofibrosis
- CLL

Practice 14- The pathology report, Interesting autopsy case presentation, Consultation

Other courses with overlapping topics (obligatory, optional, or elective courses) in interdisciplinary areas. To minimize overlaps, topics should be coordinated. Code(s) of courses (to be provided):

Orvosi Mikrobiológia I., Orvosi Mikrobiológia II., Transzlációs medicina és kórélettan I., Transzlációs Medicina - Kórélettan II., Belgyógyászat I. (Anyagcsere, Endokrinológia, Gasztroenterológia,

Nefrológia), Belgyógyászat II. (hematológia, infektológia, immunológia, reumatológia, laboratóriumi medicina)

Requirements for attendance, options for making up missed sessions, and method of absence justification:

Attendance in the practices is mandatory, we record attendance list in the start of each session by the signature of the students. Students exceeding 3 histology or 3 autopsy practice absences per semester need to compensate.

Assessment methods during semester (number, topics, and dates of midterms and reports, method of inclusion in the course grade, opportunities for make-up and improvement of marks):

(number, topics, and dates of midterms and reports, method of inclusion in the course grade, opportunities for make-up and improvement of marks)

During the semester, there will be one mid-term demonstration in the form of a test. Topics of the written test: Cell pathology, Hemodynamic disorders, Inflammation, Cardiovascular pathology.

In the practical examination in week 12, at the time of the practice, the students will demonstrate their theoretical and practical knowledge in autopsy and histology. This will include an organ demonstration, presentation of 1 histological section and correct answers to 3 definitions from the list of definitions available on the website.

Number and type of individual assignments to be completed, submission deadlines:

Not relevant.

Requirements for the successful completion of the course:

No more than three absences from histology or autopsy (including compensated practices).

Attendance at the mid-term demonstration and the practical examination in week 12 during the semester is a prerequisite for obtaining a signature for that semester. Successful completion of the organ demonstration as part of the practical exam is a prerequisite for passing the exam. Students who receive a 'fail' grade will be required to repeat the organ demonstration at a pre-arranged time before the semester examination.

Type of assessment:

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Examination requirements (list of examination topics, subject areas of tests, lists of

mandatory parameters, figures, concepts and calculations, practical skills, optional topics for the project assignment recognized as an exam and the criteria for its completion and evaluation)

The material for the examinations is based on the book, the lectures and practices as well. The questions are prepared based on the official pathological textbook, but the factual data of the lectures are also constituents of the written test.

The test consists of 60 questions and the students have 60 minutes for writing the test. The test is given in one session, there will be no break during the examination. Your sitting order is determined by the actual supervisor. The written test will be held in the Histopathology practice room. Upon submission of the test for evaluation, the computer will evaluate it. The result is immediately available and will be recorded. Since there is no possibility of human error in the correction the result of the written test is not subject of personal consultation.

Topics of the exam

I. POSTMORTEM SIGNS - NECROSIS

1. Postmortem changes, causes and mechanisms of cellular damage and cell death
 - Causes, morphology and mechanism of cell necrosis
 - Reperfusion injury
2. Macroscopic and microscopic characterization of necrosis types with organ examples
 - Coagulative necrosis and its organ manifestation
 - Colliquative necrosis and its organ manifestation
 - Hemorrhagic infarction and its organ manifestation
 - Fat, caseous and fibrinoid necrosis and its organ manifestation
 - Acute myocardial infarction
 - Cerebral infarction
3. Morphology and pathogenesis of apoptosis

II. DEGENERATIONS, ACCUMULATIONS, PIGMENT FORMATION

4. Degenerations, intracellular accumulations and pigments
 - Reversible cell injury, types of degeneration and its organ manifestation
 - Types of fatty degeneration and its organ manifestation
 - Hyaline accumulation and its organ manifestation

- Anthracosis, lipofuscin and hemosiderin accumulation

5. Dystrophic and metastatic calcification, pathomechanism and clinic-pathology of stone formation

- Dystrophic calcification and its organ manifestation

- Metastatic calcification and its organ manifestation

- Stone formation; kidney and gallbladder stones

6. General features of amyloidosis: physicochemical, ultrastructural and histochemical characterization, types of amyloid, clinico-pathology of amyloidosis

III. DISORDERS OF GROWTH

7. Definition and pathomechanism of hyperplasia, metaplasia, hypertrophy, atrophy, pathogenesis and organ examples

- Pathomechanism of atrophy and hypertrophy, examples

- Myocardial hypertrophy and its clinical forms

- Pathomechanism of hyperplasia, examples

- Pathomechanism of metaplasia and dysplasia, examples

IV. PATHOLOGY OF CIRCULATION

8. Definition of edema, pathogenesis (Frank-Starling law), clinical forms

9. Venous circular dysfunctions. Stasis and its complications

10. Pathogenesis and types of thrombosis, thromboembolic complications. Special types of emboli

- Causes and types of thrombosis

- Types of emboli

11. Arterial circular dysfunctions. Bleedings. Vascular occlusion, types of infarctions

- Types of hemorrhages and their clinical presentation

- Intracranial hemorrhages

12. Forms of shock and its effects on organs. Definition, pathogenesis and consequences of

DIC

- Causes and types of shock

- DIC

V. INFLAMMATION

13. Vascular and cellular mechanisms of acute inflammation, chemical mediators

14. Morphologic patterns of acute inflammation according to the type of exudate, examples

15. Definition of chronic inflammation, etiological factors, cellular and humoral mechanisms.

Regeneration, reparation, wound healing

- Chronic inflammation, fibrosis, scarring

- Tissue repair, wound healing

16. Granuloma, granulomatous inflammation

VI. IMMUNOPATHOLOGY

17. Type I-II hypersensitivity reactions. Clinical and pathologic manifestations

18. Type III-IV hypersensitivity reactions. Clinical and pathologic manifestations

19. Major morphologic signs of systemic lupus erythematosus, Sjögren's syndrome, rheumatoid arthritis, scleroderma

- Pathomechanism of autoimmune diseases

- Systemic lupus erythematosus, rheumatoid arthritis

- Sjögren's syndrome, scleroderma, polyarteritis nodosa

20. Pathology of transplantation

21. Pathology of inherited and acquired immunodeficiency diseases - examples

- Inherited and acquired immunodeficiency syndromes

- AIDS

VII. GENETIC DISEASES

22. Diagnostics of genetic disorders

23. Autosomal dominant, autosomal recessive and X-linked inheritance disorders

- Autosomal dominant disorders
- Familial hypercholesterinemia
- Autosomal recessive and X-linked inheritance disorders

24. Disorders caused by chromosomal aberrations

VIII. ENVIRONMENTAL CAUSES OF DISEASE

25. Effects of tobacco and air pollution

26. Effects of alcohol and related diseases

IX. NEOPLASIA

1. Epidemiology, incidence and mortality of neoplastic diseases

2. Physical, chemical, radiation and microbial carcinogenesis

- Viral and microbial carcinogenesis
- Chemical and radiation carcinogenesis

3. General characteristics of benign and malignant tumors, growth, local spread and metastasis, forms of metastasis

- General characteristics of neoplasms (benign, malignant tumors)
- Characteristics of neoplasms rate growth
- Invasion and metastasis of neoplasms

4. Development and morphology of precancerous lesions

5. Categorization of tumors according to histological type

6. Grading and staging of cancer

7. Paraneoplastic syndromes, serum tumor markers

8. Molecular mechanisms of tumor development, oncogenes, tumor suppressor genes and epigenetic factors

- Promotion mechanisms of oncogenes and role in carcinogenesis
- Inhibitory mechanisms of tumor suppressor genes and role in carcinogenesis
- EGFR, ABL and BCL2 genes and their roles in tumor development

- RB, p53 and APC genes and their roles in tumor development
- BRCA1, BRCA2 and ATM genes and their roles in tumor development
- DNA repair genes and role in carcinogenesis
- Cytogenetic aberrations and the role of telomere in carcinogenesis
- Epigenetic changes (DNA methylation, MicroRNAs) and role in carcinogenesis

9. Inherited cancer syndromes

10. Cytological, histological diagnosis of tumors, immunohistochemistry and molecular diagnostic tools

X. PATOLOGY OF THE CARDIOVASCULAR SYSTEM

11. Congenital and acquired structural disorders of the cardiovascular system

- Congenital heart diseases
- Degenerative valvular heart disease (calcific aorta stenosis, mitral prolapse)
- Valvular disease and their consequences

12. Pathogenesis, morphology and complications of atherosclerosis

13. Inflammatory heart diseases (endocarditis, myocarditis, pancarditis)

- Rheumatic fever and rheumatic myocarditis
- Infective endocarditis (acute and subacute)
- Non-infectious endocarditis (thrombotic endocarditis, Libman-Sacks endocarditis)
- Myocarditis and Cardiomyopathies

14. Cardiomyopathies

15. Pathogenesis, categorization and clinic-pathological features of vasculitis

16. Morphology and complications of acute myocardial infarction

17. Angina pectoris, chronic ischemic heart disease, sudden cardiac death

18. Etiology of heart failure, its effects on organs

- Pathomechanism of cardiac insufficiency
- Left-sided heart failure

- Right-sided heart failure

XI. PATHOLOGY OF THE HEMATOPOIETIC AND LYMPHOID SYSTEM

19. Non-neoplastic disorders of the hematopoietic system (anemia and polycythemia)

- Anemias of diminished erythropoiesis
- Anemias related to increased loss of red blood cells
- Polycythemia vera and essential thrombocythemia
- Non-neoplastic disorders of myeloid and lymphoid system

20. Neoplastic diseases of the hematopoietic system (types of leukemia)

- Chronic myelogenous leukemia, chronic idiopathic myelofibrosis
- Myelodysplastic syndromes
- Acute myelogenous leukemia

21. Non-neoplastic disorders of the lymphoid system (reactive lymphadenopathy)

22. Neoplastic diseases of the lymphoid system (types of lymphomas)

- Categorization bases of lymphomas
- Precursor T- and B-cell lymphoblastic leukemia/lymphoma
- Chronic lymphocytic leukemia, hairy cell leukemia
- Multiple myeloma and related plasma cell disorders
- Follicular lymphoma, mantle cell lymphoma, MALT-lymphoma
- Diffuse large B-cell lymphoma, Burkitt lymphoma
- Mycosis fungoides, peripheral T-cell lymphoma, anaplastic large cell lymphoma
- Hodgkin-lymphoma

23. Pathology of the spleen

Method and type of grading (Share of theoretical and practical examinations in the overall evaluation. Inclusion of the results in the end-of-term assessment. Possibilities of and conditions for offered grades.): (Share of theoretical and practical examinations in the

overall evaluation, Inclusion of the results in the end-of-term assessment, Possibilities of and conditions for offered grades)

The grade will be determined by the percentage of points obtained in the test plus the percentage of points obtained in the midterm test and the practical exam, subject to the following limits:

- 0-59,99%: 1
- 60-69,99%: 2
- 70-79,99%: 3
- 80-89,99%: 4
- 90-100%: 5

If the test result is below 60%, the exam must be repeated. Extra points from the midterm and practical exams can only be added to the result if a 60% test result is achieved. Students who are not satisfied with their test results may take a correction exam. The correction exam is optionally in the form of a written or oral exam. A grade is required for the correction exam.

In the mid-term exam, students who achieve 60% will receive 1 point, students who achieve 75% will receive 2 points and students who achieve 90% will receive 3 points, which will be added as a percentage to the semester exam. For the practical exam, students will receive a fail (0 points), pass (1 point), or pass (2 points) grade for all three sections, which will be added as percentage to the semester test exam score. The maximum number of extra points available is 9.

Extra points from the mid-term exam and the practical exam will be added as percentage to the semester exam score. Extra points from the midterm and practical exams can only be added to the result if a 60% test result is achieved.

Not relevant.

List of coursebooks, textbooks, study aids and literature facilitating the acquisition of knowledge to complete the course and included in the assessment, precisely indicating which requirement each item is related to (e.g., topic by topic) as well as a list of important technical and other applicable study aids; possibility of individual or group student consultation, if available:

Type	Required	Author	Title	Publisher	Year of publication	Link
	igen	Kumar, Abbas, Aster	Robbins Basic Pathology	Elsevier,	2017	

Signature of habilitated instructor (course coordinator) announcing the course:

Signature of the director of the host institution:

Date of submission:

Nem hatályosított