

Semmelweis University, Faculty of Medicine – single, long-cycle medical training Name of the host institution (and any contributing institution):

Patológiai és Kísérleti Rákkutató Intézet

Name of subject: Patológia II. in

English: Pathology II. **in German:**

Pathologie II.

Credit value: 8

Semester: 6. szemeszter

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

Hours per week	Lecture	Practical lesson	Seminar
8.0	3.0	5.0	0.0

Hours per semester	Lecture	Practical lesson	Seminar
0.0	0.0	0.0	0.0

Type of course:

obligatory

Academic year:

2025/26

Language of instruction (for optional and elective subjects):

english

Course code:

AOKPTK1109_2A

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

Course coordinator name: Dr. Bödör, Csaba

Course coordinator location of work, telephone availability: Department of Pathology and Experimental Cancer Research, +36-1-317-1074

Course coordinator position: deputy head of department **Course coordinator**

Date and number of habilitation:01/2021

Objective of instruction and its place in the curriculum:

The aim of teaching the pathology subject is to familiarize the students with pathological changes and the pathomechanism of diseases. In the course of the training, students get to know the examination methods and diagnostic procedures of pathology and gain insight into clinicopathological thinking. The training takes place in the form of classroom lectures, clinicopathological practices, histology, autopsy and organ demonstration practices.

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

Lectures + practices

Competencies acquired through completion of course:

Knowledge of the development and course of diseases, knowledge of the nomenclature of diseases, recognition and knowledge of basic histopathological and macroscopic changes, knowledge of clinicopathological correlations.

Course outcome (names and codes of related subjects):

AOKBOK784_1A, AOKBHK1118_2A, AOKKAR1114_1A, AOKPUL751_1A, AOKNEU963_1A, AOVNO21181_1A, AOKURO060_1A, AOKTRA1115_1A, AOKPIB1002_1A, AOSGY1876_1A, AOKGY1848_SA, AOKBOR043_1A

Prerequisites for course registration and completion: (CODE):

Pathology I.

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

According to the recent Semmelweis University Study and examination regulations

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

maximum 180 students, groups 10, 11, 12, 13, 14, 15, 16, 17, 18

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!)

Hematopathology

- | | | |
|-------|-------|---|
| 16.02 | Timár | Methods of hematology diagnostics. Classification of Anemia |
| 18.02 | Bödör | Diseases of the Myeloid system |
| 20.02 | Bödör | Clinicopathological discussion of CML |
| 23.02 | Bödör | Diseases of the Lymphoid system I. |
| 25.02 | Bödör | Diseases of the Lymphoid system II. |
| 27.02 | Mózes | Clinicopathological discussion of Multiple Myeloma |

Pathology of the liver and biliary tract

- | | | |
|--------|-------|--|
| 02.03. | Nagy | Infectious and inflammatory disorders. Hepatic failure. Liver cirrhosis. |
| 04.03. | Nagy | Toxic injuries of the liver. Liver tumors. Disorders of the gallbladder. |
| 06.03 | Dezső | Clinicopathological discussion of Hemangioendothelioma |

Gastrointestinal pathology

- 09.03 Fintha Pathology of the oral cavity, salivary gland, oesophagus
- 11.03 Fintha Pathology of stomach and small intestine
- 13.03 Jákob Clinicopathological discussion of Head-Neck tumor
- 16.03 Fintha Pathology of the large intestine and the peritoneum
- 18.03 Zalatnai Pathology of the pancreas. Diabetes mellitus
- 20.03 Fintha/Zalatnai Clinicopathological discussion of Pancreatitis

Pathology of the Endocrine System

- 23.03 Zalatnai Hypophysis, thyroid gland
- 25.03 Zalatnai Parathyroid gland, adrenals, MEN
- 27.03 Zalatnai Clinicopathological discussion of GH-secreting pituitary adenoma

Pathology of the kidney and the urinary tract

- 30.03 Fintha Malformations. Clinical manifestations of renal disease. Glomerular diseases
- 01.04 Fintha Diseases affecting tubules and interstitium. Diseases involving blood vessels
- 08.04 Kuthi Urinary outflow obstruction. Renal tumors.
- 10.04 Kuthi Clinicopathological discussion of Glomerular diseases
- 13.04 Kuthi Pathology of the urinary bladder

Pathology of the female genital tract

- 15.04 Rókusz Pathology of the female genital tract
- 17.04 Zalatnai Clinicopathological discussion of Renal tumor
- 20.04 Rókusz Pathology of the uterus and pregnancy
- 22.04 Fónyad Pathology of the breast
- 24.04. Marton Pathology of pregnancy. Clinicopathological discussion of endometriosis

Pathology of the male genital tract

- 27.04 Rác Pathology of the penis, scrotum and funiculus
- 29.04 Rác Pathology of the testis, epididymis and prostate

Pathology of the nervous system

- 04.05 Scheich Malformations, cerebrovascular diseases, edema, herniation, and hydrocephalus. CNS tumors
- 06.05 Scheich Diseases of myelin, neurodegenerative disorders. Infections
- 08.05 Scheich Clinical and pathological differential diagnostics of CNS diseases

Pathology of the skin

- 11.05 Fónyad Non-neoplastic diseases of the skin
- 13.05 Fónyad Neoplastic skin diseases
- 15.05 Fónyad Clinicopathological discussion of skin
- 18.05 Szentkereszty Pathology of musculoskeletal system I.
- 20.05 Szentkereszty Pathology of musculoskeletal system II.
- 22.05 Matolcsy Pathology competition discussion, consultation

Practical topics:

1. week Hematology I.
2. week Hematology II.

3. week Hepatology
4. week Gastroenterology I.
5. week Gastroenterology II.
6. week Nephrology
7. week Female genital organs, breast
8. week Male genital organs, pregnancy
9. week Endocrinology
10. week Dermatology
11. week Soft tissue
12. week CNS
13. week Consultation
14. week Consultation

Practical instructors:

1. Dr. Judit Pápay
2. Dr. Ildikó Krencz
3. Dr. Attila Fintha
4. Dr. Gergely Racz
5. Dr. Réka Mózes
6. Dr. Eszter Regős
8. Dr. Péter Nagy
9. Dr. Márton Ságghi
11. Dr. Noémi Jákob
12. Dr. Balázs Csernus
13. Dr. Katalin Pálos
14. Dr. Alex Jenei
15. Dr. Attila Zalatnai
16. Dr. Tamás Székely

17. Dr. Richárd Kiss
18. Dr. László Fónyad
19. Dr. Tamás Micsik
20. Dr. Vanda Téglási
21. Dr. Gergely Rác
22. Dr. Borbála Péterffy
23. Dr. Eszter Szatmári
24. Dr. Tamás László

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):

AOKTLM740_2A, AOKTLM740_1A

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

Attendance of the lectures is not mandatory, but the lectures are part of the material that can be counted in the exams. At least 75% attendance and participation in practical sessions is mandatory. The practice leaders (tutors) fill out an attendance form at the beginning of each practice. Over the course of the semester, absences that exceed three practical sessions in the autopsy room, three absences in histology/organ demonstration practical sessions, three absences in clinicopathology practice, one absence in more than one consultation practical session must be made up in the semester. A histology-organ demonstration exercise can only be replaced with an exercise on the same topic, in Hungarian or English. Autopsy and consultation practice can be replaced at any time, with any group, in both Hungarian and English. Absences from more than three dissection and histology-organ demonstration sessions, as well as one consultation practice session, must be confirmed in writing by the practice supervisors or the person in charge of studies. The clinicopathology lectures in Fridays are practices and they are not able to be replaced.

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, we do not hold mandatory subject partial performance evaluations, there are no practical marks. During the semesters, the practical tutor are constantly informed about the students' preparation. In consultation with the students of the group and the demonstrator, the practical tutor can carry out a mid-year competence and subject knowledge level assessment of various forms (oral report, presentation, test, essay, demonstration, homework, project task), however, the result of this is not followed by a practical mark, and the semester is not a condition signature and cannot be taken into account in the results of the semifinal exam.

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

-

Requirements for the successful completion of the course:

At least 75% attendance and participation in practical sessions. In the course of a semester, you can miss the three autopsy room, three histology-organ demonstration exercises, three clinicopathology practice and one consultation exercise without a certificate. The other missed practices must be replaced, the practical tutor of the replaced practice will provide a certificate. Histology and organ demonstration practice can only be replaced with the same practice. Autopsy room and consultation practice can be replaced at any time, with any group. Clinicopathology practices are not able to be replaced.

Type of assessment: szigorlat_en

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)

GENERAL PATHOLOGY TOPICS „A”

NECROSIS, APOPTOSIS

- A/01. Causes, morphology and mechanism of cell necrosis
- A/02. Reperfusion injury
- A/03. Mechanisms of apoptosis and its pathological characteristics
- A/04. Coagulative necrosis and its organ manifestation
- A/05. Colliquative necrosis and its organ manifestation
- A/06. Hemorrhagic infarction and its organ manifestation
- A/07. Fat, caseous and fibrinoid necrosis and its organ manifestation
- A/08. Acute myocardial infarction
- A/09. Cerebral infarction

REVERSIBLE CELL INJURY, PATHOLOGIC ACCUMULATION, PIGMENTS, CALCIFICATION

- A/10. Reversible cell injury, types of degeneration and its organ manifestation
- A/11. Types of fatty degeneration and its organ manifestation
- A/12. Atherosclerosis
- A/13. Amyloidosis
- A/14. Cystic fibrosis
- A/15. Hyaline accumulation and its organ manifestation
- A/16. Anthracosis, lipofuscin, hemosiderin and melanin accumulation
- A/17. Dystrophic calcification and its organ manifestation
- A/18. Metastatic calcification and its organ manifestation
- A/19. Stone formation; kidney and gallbladder stones

CELLULAR ADAPTATION TO STRESS

- A/20. Pathomechanism of atrophy and hypertrophy, examples
- A/21. Myocardial hypertrophy and its clinical forms
- A/22. Pathomechanism of hyperplasia, examples
- A/23. Pathomechanism of metaplasia and dysplasia, examples

HEMODYNAMIC DISORDERS, THROMBOSIS, HEMORRHAGE

- A/24. Pathomechanism of cardiac insufficiency
- A/25. Congestion and its organ manifestation
- A/26. Causes and types of shock
- A/27. Causes and types of edema
- A/28. Causes and types of thrombosis
- A/29. DIC
- A/30. Types of emboli
- A/31. Types of hemorrhages and their clinical presentation
- A/32. Intracranial hemorrhages

INFLAMMATION

- A/33. Characteristics of acute inflammation (cellular events, chemical mediators, systemic effects according to the exudate, organic example)
- A/34. Pathomechanism and types of chronic inflammation, organic example

DISEASES OF THE IMMUNE SYSTEM

- A/35. Type I. and Type II. Hypersensitivity reactions and their pathological presentations
- A/36. Type III. and Type IV. Hypersensitivity reactions and their pathological presentations
- A/37. Rejection of transplants
- A/38. Pathomechanism of autoimmune diseases
- A/39. Systemic Lupus Erythematosus, Rheumatoid Arthritis
- A/40. Sjögren Syndrome, Scleroderma, Polyarteritis Nodosa
- A/41. Inherited and Acquired immunodeficiencies
- A/42. AIDS

PEDIATRIC DISEASES

- A/43 Pathogenesis of congenital anomalies
- A/44. Disorders associated with prematurity (IRDS, NEC, Sudden Infant Death)
- A/45. Fetal Hydrops

ENVIRONMENTAL DISEASES

- A/46. Pathology of smoking-related disorders
- A/47. Pathology of alcohol-related disorders
- A/48. Pathomechanism of obesity and its consequences; examples

ONCOLOGY AND CARDIOLOGY TOPICS „B”

NEOPLASIA

- B/01. General characteristics of neoplasms (benign, malignant tumors)
- B/02. Classification of neoplasms on histology basis
- B/03. Characteristics of neoplasms rate growth
- B/04. Invasion and metastasis of neoplasms
- B/05. Promotion mechanisms of oncogenes and role in carcinogenesis
- B/06. Inhibitory mechanisms of tumor suppressor genes and role in carcinogenesis
- B/07. EGFR, ABL and BCL2 genes and their roles in tumor development
- B/08. RB, p53 and APC genes and their roles in tumor development

- B/09. BRCA1, BRCA2 and ATM genes and their roles in tumor development
- B/10. DNA repair genes and role in carcinogenesis
- B/11. Cytogenetic aberrations and the role of telomere in carcinogenesis
- B/12. Epigenetic changes (DNA methylation, MicroRNAs) and role in carcinogenesis
- B/13. Inherited cancer syndromes (autosomal dominant, recessive and familial)
- B/14. Viral and microbial oncogenesis
- B/15. Chemical and radiation carcinogenesis
- B/16. Tumor antigens
- B/17. Tumor immunity and immune surveillance
- B/18. Epidemiology of neoplasms
- B/19. Characteristics and morphology of preneoplastic disorders
- B/20. Grading and staging of cancer
- B/21. Effects of tumor on host (cancer cachexia, paraneoplastic syndromes)
- B/22. Tumors of childhood and their characteristics (neuroblastoma, retinoblastoma, Wilms tumor)
- B/23. Pathological, genetic, immunological and molecular diagnostics of tumors
- B/24. Tumor therapy (surgical, radiation, chemo, target molecular and immunotherapy)

PATHOLOGY OF CARDIOVASCULAR SYSTEM

- B/25. Left-sided heart failure
- B/26. Right-sided heart failure
- B/27. Congenital heart diseases
- B/28. Myocardial infarction, sudden cardiac death
- B/29. Angina pectoris, chronic ischemic heart disease
- B/30. Hypertensive heart disease
- B/31. Rheumatic fever and rheumatic myocarditis
- B/32. Degenerative valvular heart disease (calcific aorta stenosis, mitral prolapse)
- B/33. Infective endocarditis (acute and subacute)
- B/34. Noninfective endocarditis (thrombotic endocarditis, Libman-Sacks endocarditis)
- B/35. Valvular vitiums and their consequences
- B/36. Myocarditis and Cardiomyopathies
- B/37. Cor pulmonale
- B/38. Arteriosclerosis
- B/39. Aneurysms and Aortic Dissection
- B/40. Arteritis and Phlebitis
- B/41. Varices, varicosities and disorders of the lymphatic vessels
- B/42. Cardiac and vascular tumors

SYSTEMIC PATHOLOGY TOPICS,,C"

PATHOLOGY OF HEMATOPOETIC AND LYMPHOID SYSTEM

- C/1. Diagnostic methods of hematology (biopsy, flow cytometry, histochemical, cytogenetic, molecular diagnosis)
- C/2. Anemias of diminished erythropoiesis
- C/3. Anemia of blood loss
- C/4. Non-neoplastic disorders of myeloid and lymphoid system
- C/5. CML and chronic myelofibrosis
- C/6. Polycythemia vera, essential thrombocythemia
- C/7. Disorders of the spleen and thymus
- C/8. Myelodysplastic syndromes
- C/9. Acute myeloid leukemia, lymphoplasmocytic lymphoma

- C/10. Precursor T- and B-cell lymphoblastic leukemia/lymphoma
- C/11. CLL hairy cell leukemia
- C/12. Multiple myeloma and related plasma cell disorders
- C/13. Follicular lymphoma, mantle cell lymphoma, extranodal marginal zone lymphoma
- C/14. Diffuse large B cell lymphoma, Burkitt lymphoma
- C/15. Mycosis fungoides, Sezary syndrome, Peripheral T-cell lymphoma
- C/16. Hodgkin lymphoma

PATHOLOGY OF THE RESPIRATORY TRACT

- C/18. Atelectasis and acute respiratory distress syndrome
- C/19. Obstructive lung diseases- COPD
- C/20. Obstructive lung diseases- bronchial asthma and bronchiectasis
- C/21. Chronic interstitial (restrictive) lung diseases
- C/22. Pulmonary diseases of vascular origin - pulmonary embolism, hemorrhage, and infarction
- C/23. Pulmonary hypertension
- C/24. Pulmonary infections (except tuberculosis)
- C/25. Granulomatous diseases of the lung
- C/26. Primer and metastatic tumors of the lung
- C/27. Pathology of the pleura and pericardium
- C/28. Lesions of the upper respiratory tract
- C/29. Tumors of nasal passages, nasopharynx and larynx

PATHOLOGY OF THE ORAL CAVITY AND THE GASTROINTESTINAL TRACT

- C/30. Pathology of lips, oral cavity and pharynx
- C/31. Salivary gland diseases
- C/32. Pathology of esophagus
- C/33. Gastritis
- C/34. Peptic ulcers
- C/35. Gastric tumors
- C/36. Developmental anomalies and vascular disorders of the GI tract
- C/37. Malabsorption
- C/38. Enterocolitis
- C/39. Colonic diverticulosis and bowel obstruction
- C/40. Inflammatory bowel diseases (ulcerative colitis, Crohn disease)
- C/41. Pathology of the appendix and peritoneum
- C/42. Tumors of the small and large intestines

PATHOLOGY OF THE LIVER, BILIARY TRACT, AND PANCREAS

- C/43. Liver failure
- C/44. Cholestatic liver syndromes (PBC, PSC)
- C/45. Pathophysiology of jaundice, defects of bilirubin and bile formation. Cholelithiasis
- C/46. Circulatory disorders of liver
- C/47. Acute and chronic hepatitis
- C/48. Alcohol- and drug-induced liver diseases
- C/49. Metabolic and inherited liver diseases
- C/50. Liver cirrhosis

- C/51. Tumors and tumor-like lesions of the liver
- C/52. Inflammations and tumors of the biliary system and gallbladder
- C/53. Pancreatitis
- C/54. Diabetes mellitus
- C/55. Tumors of the exocrine and endocrine pancreas

PATHOLOGY OF THE KIDNEY AND ITS COLLECTING SYSTEMS

- C/56. End-stage kidney and renal failure
- C/57. Developmental abnormalities and cystic diseases of the kidney
- C/58. Pathogenesis of glomerular diseases
- C/59. The nephritic syndrome
- C/60. The nephrotic syndrome
- C/61. Rapidly progressive glomerulonephritis
- C/62. Systemic diseases associated glomerular damage
- C/63. Vascular diseases of the kidney
- C/64. Diabetic nephropathy
- C/65. Acute tubular necrosis (ATN)
- C/66. Acute and chronic pyelonephritis
- C/67. Urolithiasis and urinary outflow obstructions
- C/68. Tumors of kidney
- C/69. Tumors of the urinary bladder and collecting system

PATHOLOGY OF THE FEMALE GENITAL SYSTEM AND BREAST

- C/70. Diseases of the vulva and vagina
- C/71. Pathology of the uterine cervix
- C/72. Endometritis, endometrial hyperplasia, endometriosis
- C/73. Tumors of the endometrium and myometrium
- C/74. Non-neoplastic diseases of the ovary and fallopian tube
- C/75. Ovarian tumors
- C/76. Pathology of pregnancy
- C/77. Benign epithelial lesions and benign tumors of the breast
- C/78. Malignant tumors of the breast

PATHOLOGY OF THE MALE GENITAL SYSTEM

- C/79. Diseases of the penis, scrotum and epididymis
- C/80. Inflammatory lesions of the testis and epididymis. Cryptorchidism and testicular atrophy.
- C/81. Tumors of the testis
- C/82. Prostatitis, benign prostatic hyperplasia
- C/83. Carcinoma of the prostate

PATHOLOGY OF THE ENDOCRINE SYSTEM

- C/84. Hypo- and hyperfunctions of the hypothalamic-hypophysial system
- C/85. Thyreoiditis, hypo- and hyperfunctions of the thyreoid gland
- C/86. Tumors of thyreoid gland
- C/87. Pathology of the parathyroid glands

- C/88. Hypo- and hyperfunctions and tumors of the adrenal gland
- C/89. Multiple endocrine neoplasia (MEN) and carcinoid syndrome

PATHOLOGY OF THE MUSCULOSKELETAL SYSTEM

- C/90. Congenital diseases of bone
- C/91. Acquired diseases of bone development (osteoporosis, rickets, osteomalacia)
- C/92. Osteomyelitis. Paget's disease
- C/93. Tumors and tumor-like lesions of the bone
- C/94. Degenerative and inflammatory joint diseases
- C/95. Muscular atrophy, dystrophies and myositis
- C/96. Tumors of skeletal and smooth muscles
- C/97. Fibroblast-myofibroblast differentiated soft tissue tumors
- C/98. Tumors of adipose tissue
- C/99. Soft tissue tumors of uncertain origin

PATHOLOGY OF THE SKIN

- C/100. Blistering skin disorders (pemphigus, bullous pemphigoid, dermatitis herpetiformis)
- C/101. Inflammatory skin diseases
- C/102. Melanocytic tumors
- C/103. Non-melanocytic skin tumors

PATHOLOGY OF THE NERVOUS SYSTEM

- C/104. Pathology of increased intracranial pressure (edema, herniation and hydrocephalus)
- C/105. Congenital malformations of the central nervous system
- C/106. Cerebrovascular diseases (hypoxia, ischemia, infarction)
- C/107. Neurodegenerative and prion diseases
- C/108. Intracranial haemorrhages
- C/109. Infections of the central nervous system (meningitis, encephalitis)
- C/110. Diseases of myelin
- C/111. Tumors of central and peripheral nervous system

Practical exam: Recognition and demonstration of the sections and macropreparations presented in the histological practice.

Autopsy exam: demonstrating the organ complexes presented in the autopsy room exercises and answering questions related to the changes seen.

Theory exam: Description of a general pathology (A), an oncology and cardiology (B), and a detailed pathology (C) topics.

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 test consists of a practical and a theoretical part, both of which are oral exams. The practical exam consists of an autopsy exam, two digital histological sections and a demonstration of a preserved preparation. The student receives a separate mark for each practical exam section. An insufficient practical exam partial mark is deterrent, i.e. in this case the student can't attempt the theoretical exam part. The successful practical exam is followed by the theoretical part of the exam. It takes place at the theoretical examination boards, the chairpersons of which are appointed by the head of the department. Another member of the committee, usually a resident physician, is appointed by the study supervisor. The final theoretical exam takes place based on the exam topics announced at the beginning of the academic year. The student draws a general pathology topic (A), an oncology and cardiology topic (B), and a systemic pathology topic (C). The student receives a separate mark for each theoretical exam section. An insufficient (1) theoretical exam part is in itself fail. At the end of the theoretical part, the chairman of the examination board determines the final grade based on the practical and oral exam partial marks, which is usually - but not necessarily - the weighted average of the practical and theoretical exam partial marks.

Printed resources:

Required	No
Author	Dr. András Matolcsy
Title	The basics of pathology - in a Socratic manner
Publisher	Medicina
Year of publication	2015
Other/Comment	2nd edition
Required	Yes
Author	Robbins-Kumar
Title	Fundamentals of Pathology
Publisher	Medicina
Year of publication	2025
Other/Comment	11th edition
