Ministry of Health of the Russian Federation

federal state budgetary educational institution
higher education
"North-Western State Medical University named after I.I. Mechnikov"

Ministry of Health of the Russian Federation

(Federal State Budgetary Educational Institution of Higher Education North-Western State Medical University named after I.I. Mechnikov of the Ministry of Health of the Russian Federation)

DISCIPLINE WORK PROGRAM

Clinical Pathological Anatomy

Specialty: 31.05.01 General Medicine

Focus: Organization and Delivery of Primary Health Care to the Adult Population in Medical Organizations

Implementation language: Russian, English

2021

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The work program of the discipline was discussed at a department meeting
Pathological Anatomy
April .28., 2021. Protocol No. ..

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Approved by the Methodological Commission for the specialty 31.05.01 General Medicine
May 11, 2021

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Reviewed by the Methodological Council and recommended for approval by the Academic Council
May 20, 2021

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Date of update:

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1. The purpose of mastering the discipline

The purpose of mastering the discipline 'Clinical Pathological Anatomy' is to develop students' competencies and knowledge of the etiology, pathogenesis, morphogenesis, and morphological manifestations of major human diseases; the morphological basis of recovery; possible complications, outcomes, and long-term consequences; the clinical and morphological assessment of biopsy, surgical, and autopsy material; the principal concepts of diagnosis; and the practical work of a pathologist in healthcare institutions.

2. The place of discipline in the structure of the educational program

The discipline 'Clinical Pathological Anatomy' belongs to the mandatory part of Block 1 'Disciplines (Modules)' of the main professional educational program in specialty 31.05.01 General Medicine (specialist degree level), focus: Organization and Delivery of Primary Health Care to the Adult Population in Medical Organizations. The discipline is mandatory.

3. List of planned learning outcomes in the discipline, correlated with the planned results of mastering the educational program

Code and name of competency	Code and name of the competency achievement indicator
GPC-5. Able to assess morphofunctional and physiological conditions and pathological processes in the human body in order to solve professional tasks.	ID-3 GPC-5.3. Determines the principal indicators of a patient's physical development and functional status with due regard to age-related anatomical and physiological characteristics.

Competency achievement indicator code	Learning outcomes (assessment indicators)	Evaluation tools
ID-3 GPC-5.3.	knows the indicators of a patient's functional status and physical development, taking into account age-related anatomical and physiological characteristics	Test questions, Written report, Test items, Clinical cases, Demonstration of practical skills (description of gross and microscopic specimens).
	is able to determine the principal indicators of a patient's functional status and physical development, taking into account age-related anatomical and physiological characteristics	
	has skills in determining the principal indicators of a patient's functional status and physical development, taking into account age-related anatomical and physiological characteristics	

4. Scope of discipline and types of academic work

Type of educational work	Labor intensity	Semesters
		9
Contact work between students and teachers	**48**	**48**

Classroom work:	**46**	**46**
Lectures (L)	12	12
Practical exercises (PP)	34	34
Independent work:	**24**	**24**
during the period of theoretical training	20	20
preparation for the examination	4	4
Intermediate assessment: test, including delivery and group consultations	**2**	**2**
Total workload: academic hours	**72**	
credit units	**2**	

5. The content of the discipline, structured by sections (topics) indicating the number of academic hours and types of training sessions

5.1.Content of discipline sections

item no.	Section title of the discipline	Annotated content of the discipline section	List of competencies formed in the process of mastering the section
1.	Clinical Pathological Anatomy	Organization of pathology services in the Russian Federation.	GPC-5
		Autopsy examination. Principles of diagnosis.	GPC-5
		Pathological anatomy of sudden cardiac death.	GPC-5
		Pathomorphological examination of biopsy and surgical specimens.	GPC-5
		Antermortem diagnosis using surgical and biopsy material in selected areas of pathology: breast, prostate, lung, gastric, and colorectal cancer.	GPC-5
		Pathological anatomy of hematologic malignancies: acute and chronic leukemias, Hodgkin and non-Hodgkin lymphomas, and paraproteinemic leukemias (multiple myeloma).	GPC-5

5.2. Thematic plan of lectures

item no.	Name section of the discipline	Lecture topics	Active learning formats*	Labor intensity (academic hours)
1	Clinical Pathological Anatomy	L.1. Organization and history of pathology services in Russia. Deontology: concept and principles. Role, structure, and significance of the Clinical and Anatomical Conference, Medical Review Board, and Committee for the Study of Fatal Outcomes in inpatient institutions. Structure, goals, and objectives of pathology services. Principles of nosology. Principal mechanisms of death.	LB	2
		L.2. Autopsy examination. Principles of diagnosis. Rules governing post-	LB	2

		mortem examinations (legal grounds and regulations), autopsy technique, and documentation. Pathological diagnosis. Structure of the diagnosis and final case summary. Comparison of clinical and pathological diagnoses. Categories of diagnostic discrepancy. Iatrogenic conditions. Concept of disease. ICD-10.		
		L.3. Pathological anatomy of sudden cardiac death. Causes and mechanisms. Myocardial infarction, alcoholic heart disease, and cardiomyopathies.	LB	2
		L.4. Pathomorphological examination of biopsy and surgical specimens. Examination rules and current methods of morphological diagnosis.	LB	2
		L.5. Antemortem diagnosis using surgical and biopsy material in selected areas of pathology: breast, prostate, lung, gastric, and colorectal cancer. Current epidemiology, incidence, location, gross growth patterns, histological features, and metastatic routes.	LB	2
		L.6. Pathological anatomy of hematologic malignancies: acute and chronic leukemias, Hodgkin and non-Hodgkin lymphomas, and paraproteinemic leukemias (multiple myeloma). Classification and general characteristics. Non-Hodgkin lymphomas. Hodgkin disease: histological forms and prognosis. Leukemias. Morphology of multiple myeloma.	LB	2
			TOTAL:	12

IL – interactive lecture

5.3. Schedule of practical classes

item no.	Name section of the discipline	Practical-class topics	Active learning formats*	Forms of ongoing assessment	Labor intensity (academic hours)
1	Clinical Pathological Anatomy	PC1. Organization of pathology services in Russia. Deontology. Principles of nosology and principal mechanisms of death. History, structure, goals, and objectives of	GD AC	Test questions, Written report, Test items, Clinical cases, Demonstration of practical skills (descrip-	6

		pathology services. Role of clinical review bodies in inpatient institutions.		tion of gross and micro-scopic speci-mens).	
		PC2. Autopsy examination: procedure, technique, and documentation. Principles of diagnosis. Legal grounds and regulations. Pathological diagnosis; structure of the diagnosis and final case summary; comparison of clinical and pathological diagnoses; categories of discrepancy; iatrogenic conditions; concept of disease; ICD-10.	GD AC	Test questions, Written report, Test items, Clinical cases, Demonstration of practical skills (description of gross and micro-scopic specimens).	6
		PC3. Pathological anatomy of sudden cardiac death: causes and mechanisms; myocardial infarction; alcoholic heart disease; cardiomyopathies.	GD AC	Test questions, Written report, Test items, Clinical cases, Demonstration of practical skills (description of gross and micro-scopic specimens).	6
		PC4. Pathomorphological examination of biopsy and surgical specimens. Examination rules. Principal histological and current morphological diagnostic methods.	GD AC	Test questions, Written report, Test items, Clinical cases, Demonstration of practical skills (description of gross and micro-scopic specimens).	6
		PC5. Antemortem diagnosis using surgical and biopsy material: breast, prostate, lung, gastric, and colorectal cancer; epidemiology, incidence, location, gross growth patterns, histology, and metastatic routes.	GD AC	Test questions, Written report, Test items, Clinical cases, Demonstration of practical skills (description of gross and micro-scopic specimens).	6
		PC6. Pathological anat-	GD	Test questions,	4

		omy of hematologic malignancies: acute and chronic leukemias, Hodgkin and non-Hodgkin lymphomas, and multiple myeloma; classification, morphology, histological forms, and prognosis.	AC	Written report, Test items, Clinical cases, Demonstration of practical skills (description of gross and microscopic specimens).	
TOTAL:					34

GD – group discussion;
CA – case analysis

5.3. Thematic plan of seminars is not provided

5.4. Thematic plan of laboratory work is not provided

5.5. Independent work:

item no.	Section title of the discipline	Types of independent work	Current control forms	Labor intensity (academic hours)
1.	Clinical Pathological Anatomy	Review of lecture material L.1–L.6. Work with educational literature, item 8. Work with regulatory documents, item 5.6.1.	Review questions, test items, Written report, Clinical cases and demonstration of practical skills (description of gross and microscopic specimens).	20
			Preparation for the test:	4
			TOTAL:	20

5.6.1. List of regulatory documents:

1. Federal Law No. 323-FZ dated November 21, 2011, ‘On the Fundamentals of Health Protection in the Russian Federation’.
2. Order No. 179n of the Ministry of Health of the Russian Federation dated March 24, 2016, ‘On the Rules for Conducting Pathological Examinations’ (registered April 14, 2016, No. 41799).
3. Order No. 354n of the Ministry of Health of the Russian Federation dated June 6, 2013, ‘On the Procedure for Conducting Postmortem Examinations’ (registered December 16, 2013, No. 30612).

5.6.2. Written-report topics:

1. Inflammation: definition, classification, protective mechanisms, and significance.
2. Protective mechanisms in the immune organism. Allergic reactions and their morphological features.
3. Serous and catarrhal inflammation: causes, gross and microscopic features, and outcomes.
4. Exudative inflammation: causes, types, clinicopathological features, and outcomes.

5. Fibrinous inflammation: causes, types, gross and microscopic features, and outcomes.
6. Suppurative inflammation: causes, clinicopathological forms, gross and microscopic features, outcomes, and complications.
7. Productive inflammation: types, gross and microscopic features, and outcomes.
8. Gross and microscopic features of granulation tissue; essential components and evolution of granulation tissue.
9. Tuberculosis. Tuberculous granuloma (epithelioid tubercle): structure and outcomes.
10. Syphilis. Syphilitic granuloma: structure and location.
11. Actinomycosis: etiology, nature of inflammation, and microscopic features.
12. Leprosy: etiology, nature of inflammation, and microscopic features.
13. Rhinoscleroma: etiology, nature of inflammation, and microscopic features.
14. Nonspecific granulomatous inflammation.
15. General principles of tumors: definition and nomenclature.
16. Clinicopathological differences between benign and malignant tumors.
17. Tumor etiology (theories). Precancerous conditions and examples.
18. International TNM classification of tumors.
19. Tumor morphogenesis. Theories of stepwise and stagewise tumor transformation.
20. Benign epithelial tumors: structure, location, and types.
21. Carcinomas: general histological classification.
22. Carcinoma in situ: definition, locations, verification methods, and significance in early cancer diagnosis.
23. Benign non-epithelial tumors: types, structure, and location.
24. Sarcomas: classification, tissues of origin, morphology, and metastatic patterns.
25. Tumors of hematopoietic tissue: classification and systemic distinctions.
26. Non-Hodgkin lymphomas: classification and general characteristics.
27. Hodgkin lymphoma (Hodgkin disease): histological forms and prognosis.
28. General effects of tumors on the human body. Types of tumor growth.
29. Leukemias: classification.
30. Effects of tumors on the human body. Paraneoplastic syndrome.
31. Define the group term ‘rheumatic diseases’ and list the principal diseases and group characteristics: etiology, pathogenesis, clinical course, immune disorders, complications, outcomes, and causes of death.
32. List the stages of progressive connective-tissue disorganization, their location and topography, clinicopathological manifestations, and outcomes.
33. Clinicopathological forms of rheumatic fever.
34. Types of rheumatic endocarditis: location, lesion pattern, gross and microscopic manifestations, complications, outcomes, and causes of death.
35. General classification and characteristics of heart defects, with detail on rheumatic defects. Principal hemodynamic disturbances, illustrated by a circulation diagram.
36. Differential histological diagnosis of productive and nonproductive myocarditis in rheumatic fever. Histological structure, stages, formation, and evolution of the granuloma, illustrated schematically.
37. Types of rheumatic pericarditis: location, extent, stages, gross and microscopic changes, complications, and outcome. Reasons for the descriptive terms ‘hairy heart’ and ‘armored heart’ in fibrinous pericarditis.
38. Clinicopathological manifestations of the articular form of rheumatic fever.
39. Clinicopathological manifestations of the cerebral form of rheumatic fever.
40. Clinicopathological manifestations of the nodular form of rheumatic fever.
41. Complications, outcomes, and causes of death in the various clinicopathological forms of rheumatic fever.
42. Etiopathogenetic and morphogenetic features of rheumatoid arthritis. Similarities and differences from rheumatic arthritis.
43. Organ-specific features, complications, and outcomes of systemic lupus erythematosus.

44. Systemic sclerosis: definition, etiology, morphological and clinical manifestations, complications, and outcomes.
45. Dermatomyositis: definition, etiology, morphological and clinical manifestations, complications, and outcomes.
46. Polyarteritis nodosa: definition, etiology, morphological and clinical manifestations, complications, and outcomes.
47. Ankylosing spondylitis: definition, etiology, morphological and clinical manifestations, complications, and outcomes.
48. Sjögren syndrome: definition, etiology, morphological and clinical manifestations, complications, and outcomes.
49. Disorders of immunological homeostasis as the basis of the pathogenesis of rheumatic diseases.
50. Acquired heart defects: definition, etiology, classification, morphological and clinical manifestations, complications, and outcomes.
51. Congenital heart defects: definition, etiology, classification, morphological and clinical manifestations, complications, and outcomes.
52. Esophagus: anatomy (structure, innervation, and blood supply) and histology.
53. Stomach: anatomy (structure, innervation, and blood supply) and histology.
54. Small intestine: anatomy (structure, innervation, and blood supply) and histology.
55. Large intestine: anatomy (structure, innervation, and blood supply) and histology.
56. Inflammatory diseases of the esophagus: etiology, risk factors, and diagnosis.
57. Esophageal diverticula: etiology, classification, and diagnosis.
58. Barrett esophagus: etiology, pathogenesis, gross and microscopic features, and complications.
59. Benign epithelial and non-epithelial tumors of the esophagus.
60. Esophageal cancer: risk factors, gross and microscopic forms, complications, and causes of death.
61. Acute gastritis: definition, etiology, classification, morphology, and outcomes.
62. Chronic gastritis: definition, etiology, classification, morphology, and outcomes.
63. Peptic ulcer disease of the stomach and duodenum: definition, etiology, pathogenesis, morphogenesis, gross and microscopic features, complications, and outcomes.
64. Gastric and duodenal erosions and acute ulcers: definition, etiology, morphology, complications, and causes of death.
65. Gastric polyps: classification and morphology.
66. Gastric cancer: risk factors, gross and histological forms, complications, lymphatic spread, Virchow and Schnitzler metastases, Krukenberg tumor, and causes of death.
67. Whipple disease: definition, clinical presentation, gross and microscopic features, complications, and outcomes.
68. Congenital intestinal anomalies: Hirschsprung disease, Meckel diverticulum, atresia, and stenosis.
69. Ulcerative colitis: definition, clinical presentation, gross and microscopic features, complications, and outcomes.
70. Crohn disease: definition, clinical presentation, gross and microscopic features, complications, and outcomes.
71. Appendicitis: definition, classification, clinical presentation, gross and microscopic features, complications, and outcomes.
72. Alcoholic cardiomyopathy: definition, clinical presentation, gross and microscopic features, complications, and outcomes.
73. Dilated cardiomyopathy: definition, clinical presentation, gross and microscopic features, complications, and outcomes.
74. History of pathology services in Russia.
75. Structure, goals, and objectives of pathology services in Russia.
76. Principles of nosology.

77. Principal mechanisms of death.
78. Current methods of morphological diagnosis.
79. Principles of diagnosis. Structure of the diagnosis and final case summary.
80. Comparison of clinical and pathological diagnoses.
81. Role, structure, and significance of clinical review bodies in inpatient healthcare institutions.
82. Legal basis for regulating the rules of pathological examinations.
83. Formulation and comparison of clinical and pathological diagnoses.
84. Iatrogenic conditions. Categories of diagnostic discrepancy.
85. Deontology: concept and principles.

6. Guidelines for students on mastering the discipline

To study all sections effectively, students must independently review the teaching materials available in the library and MOODLE, prepare a written report, complete practice tests for all sections, and participate actively in clinical practical and practical classes. To pass interim certification, students must prepare all assessment materials: review questions, clinical cases, and the practical skill.

7. Evaluation materials

Assessment materials for the discipline for ongoing monitoring of progress and intermediate certification of students include examples of assessment tools (Appendix A to the work program of the discipline), procedure and assessment criteria.

8. List of educational literature and Internet resources required for mastering the discipline.

8.1. Educational literature:

1. Paukov V. S. Pathological Anatomy. Vol. 2: Systemic Pathology [electronic resource]: textbook / ed. by V. S. Paukov. Moscow: GEOTAR-Media, 2015. 528 p. ISBN 978-5-9704-3253-2. http://www.studmedlib.ru/book/ISBN9785970432532.html

2. Paukov V. S. Pathological Anatomy. Vol. 2: Systemic Pathology [electronic resource]: textbook / ed. by V. S. Paukov. Moscow: GEOTAR-Media, 2016. 528 p. ISBN 978-5-9704-3745-2. http://www.studmedlib.ru/book/ISBN9785970437452.html

3. Paukov V. S. Pathological Anatomy. Vol. 1 [electronic resource]: textbook / ed. by V. S. Paukov. 2nd expanded ed. Moscow: GEOTAR-Media, 2016. 728 p. ISBN 978-5-9704-3744-5. http://www.studmedlib.ru/book/ISBN9785970437445.html

4. Paltsev M. A. Pathological Anatomy [electronic resource]: national guideline / chief eds. M. A. Paltsev, L. V. Kaktursky, O. V. Zayratyants. Moscow: GEOTAR-Media, 2014. 1,264 p. ISBN 978-5-9704-3154-2. https://www.rosmedlib.ru/book/ISBN9785970431542.html

5. Zayratyants O. V. General Pathological Anatomy [electronic resource] / O. V. Zayratyants et al. Moscow: GEOTAR-Media, 2013. 276 p.
http://www.studmedlib.ru/book/06-COS-2381.html

6. Klatt E. C. Robbins and Cotran Atlas of Pathology / translated from English; ed. by O. D. Mishnev and A. I. Shchegolev. Moscow: Logosfera, 2010. 544 p. ISBN 978-5-98657-019-8.
https://www.books-up.ru/ru/book/atlas-patologii-robbinsa-i-kotrana-2006539/

7. Povzun S. A. Pathological Anatomy in Questions and Answers [electronic resource]: study guide. 3rd revised and expanded ed. Moscow: GEOTAR-Media, 2016. 176 p. ISBN 978-5-9704-3639-4. http://www.studmedlib.ru/book/ISBN9785970436394.html

8. Pathological Anatomy: textbook / ed. by V. S. Paukov. Moscow: GEOTAR-Media, 2025. 752 p. ISBN 978-5-9704-9264-2. Electronic text, Student Consultant. https://www.studentlibrary.ru/book/ISBN9785970492642.html

9. Pathological Anatomy: in 2 vols. Vol. 1. General Pathology: textbook / ed. by V. S. Paukov. 3rd revised ed. Moscow: GEOTAR-Media, 2022. 752 p. ISBN 978-5-9704-7095-4. Electronic text, Student Consultant. https://www.studentlibrary.ru/book/ISBN9785970470954.html

10. Pathological Anatomy: in 2 vols. Vol. 2. Systemic Pathology: textbook / ed. by V. S. Paukov. 3rd revised ed. Moscow: GEOTAR-Media, 2022. 544 p. ISBN 978-5-9704-7096-1. Electronic text, Student Consultant. https://www.studentlibrary.ru/book/ISBN9785970470961.html

8.2. Internet information and telecommunications resources:

Name of Internet resource	Email address of the resource
Websites of the Ministry of Health of the Russian Federation and regional health authorities	www.rosminzrav.ru
Website of the Federal Service for Surveillance on Consumer Rights Protection and Human Wellbeing	www.rospotrebnadzor.ru
Electronic library	www.elibrary.ru
Website of the Russian Society of Pathologists	http://www.patolog.ru/

9. List of information technologies used to master the discipline, including a list of software, professional databases and information reference systems

9.1. List of information technologies used in the educational process:

item no.	Name discipline section	Information technology
1.	Clinical Pathological Anatomy	Educational materials in the electronic educational environment of North-Western State Medical University named after I. I. Mechnikov, Ministry of Health of Russia – Access mode: https://moodle.szgmu.ru/course/view.php?id=295

9.2. List of software used in the educational process (licensed and freely distributed software, including domestically produced):

item no.	Software product name	License validity period	Documents confirming right to use software products
licensed software			

1.	ESET NOD 32	1 year	Government contract № 07/2020
2.	MS Windows 8 MS Windows 8.1 MS Windows 10 MS Windows Server 2012 Datacenter - 2 Proc MS Windows Server 2012 R2 Datacenter - 2 Proc MS Windows Server 2016 Datacenter Core	Unlimited	State contract No. 30/2013-O; Government contract No. 399/2013-OA; Government contract No. 07/2017-EA.
3.	MS Office 2010 MS Office 2013	Unlimited	Government contract No. 30/2013-OA; Government contract No. 399/2013-OA.
4.	Academic LabVIEW Premium Suite (1 User)	Unlimited	Government contract № 02/2015
licensed software of domestic production			
1.	Anti-plagiarism	1 year	Government contract № 2409
2.	“WEBINAR (WEBINAR)” VERSION 3.0	1 year	Contract No. 347/2020-M
3.	"3KL e-learning environment"	1 year	Contract No. 348/2020-M
4.	TrueConf Enterprise	1 year	Contract No. 396/2020-EA
free software			
1.	Google Chrome	Unlimited	Open License Agreement GNU GeneralPublicLicense
2.	NVDA	Unlimited	Open License Agreement GNU GeneralPublicLicense
freely distributed software of domestic production			
1.	Moodle	Unlimited	Open License Agreement GNU GeneralPublicLicense

9.3. List of professional databases and information reference systems:

item no.	Name software product	License validity period	Documents confirming right to use software products	Mode access for disabled students and persons with limited health capabilities
1.	Consultant Plus	1 year	Agreement No. 655/2020-EA	-
2.	EBS “Student Consultant”	1 year	Contract No. 307/2020-EA	http://www.studmedlib.ru/
3.	EMB “Doctor Consultant”	1 year	Contract No. 281/2020-EA	http://www.rosmedlib.ru/
4.	EBS "Ibooks.ru/ibooks.ru"	1 year	Contract № 06/2020	https://ibooks.ru
5.	EBS “IPRBooks”	1 year	Contract No. 08/2020-ZK	http://www.iprbookshop.ru/special
6.	Electronic library	1 year	Contract	https://www.books-up.ru/

	system “Bukap”		№ 05/2020	
7.	EBS "Lan Publishing House"	1 year	Contract No. 395/2020-EA	https://e.lanbook.com/

10. Material and technical support of discipline

Lecture classrooms, group and individual consultation rooms, ongoing-assessment and interim-certification rooms at 47 Piskarevsky Prospekt, Building I, Pavilion 14 (rooms 1–4) and Pavilion 23 (rooms 6–7), St. Petersburg, equipped with teaching equipment and technical aids:
Equipment: chalkboard; instructor’s desk and chair; student desks and chairs.
Teaching technology:

Binocular microscopes – 60
Multimedia projector – 1
Laptop – 1
Microscope with camera, imaging system, and computer – 1
Internet-enabled computers – 2
Histological equipment for preparing teaching slides.

Visual aids:

Organs preserved in fixative solutions (gross specimens) – 570.
Unfixed organs (autopsy material)
Thematic sets of microscopic specimens – 25 sets
Charts – 162
Display stands – 8

Special assistive technology: Roger Pen wireless transmitter and Roger MyLink receiver for students with hearing impairment; IntelliKeys wired keyboard with Russian Braille lettering and matte black finish; rooms 18–19, Building R (Building 9), 47 Piskarevsky Prospekt, St. Petersburg.

Classrooms for group and individual consultations, ongoing assessment, and interim certification, equipped with teaching equipment and technical aids: Building I, 47 Piskarevsky Prospekt, St. Petersburg.
Equipment: laboratory table, laminar-flow cabinet, thermostat, Research variable-volume automatic pipettes (Eppendorf) 0.5–10 μL, 2–20 μL, 20–200 μL, and 100–1,000 μL; racks for pipettes and 0.2, 0.6, and 1.5 mL microtubes; laboratory refrigerator with +4°C and −20°C chambers; thermostats; vertical-rotor centrifuge.

Technical teaching aids: multimedia projector, teacher’s laptop, system unit, monitor.
Special technical teaching aids: Roger Pen (Roger personal wireless transmitter in the form of a pen), Roger MyLink (Roger Pen system signal receiver) (for students with hearing impairments); IntelliKeys (wired keyboard with Russian Braille with a matte black finish), (St. Petersburg, Piskarevsky Prospekt, 47, lit. R (building 9), room No. 18.19, Federal State Budgetary Educational Institution of Higher Education North-Western State Medical University named after I.I. Mechnikov of the Ministry of Health of the Russian Federation).
Personal protective equipment: disposable aprons, sleeve covers, caps, masks, gloves, goggles, and disinfectants.

Premises for independent work of students, equipped with computer equipment with the ability to connect to the Internet and provided with access to the electronic information and educational environment of the University: St. Petersburg, Piskarevsky Prospekt, 47, lit. AE (building 32),
aud. No. 1, lit. R (building 9), room. No. 18.19 FSBEI HE North-Western State Medical University named after. I.I. Mechnikov of the Russian Ministry of Health.

Appendix A

Ministry of Health of the Russian Federation

federal state budgetary educational institution
higher education
"North-Western State Medical University
named after I.I. Mechnikov"
Ministry of Health of the Russian Federation

(Federal State Budgetary Educational Institution of Higher Education North-Western State Medical University named after I.I. Mechnikov of the Ministry of Health of the Russian Federation)

EVALUATION MATERIALS

(for ongoing monitoring of progress and intermediate certification of students)

Specialty:	31.05.01 General medicine
Focus	Organization and provision of primary health care to the adult population in medical organizations
Name of discipline:	Clinical Pathological Anatomy

St. Petersburg – 2021

1. List of planned learning outcomes in the discipline

Competency achievement indicator code	Learning outcomes (assessment indicators)	Evaluation tools
ID-3 GPC-5.3.	**Knows the principal indicators of a patient's physical development and functional status, taking into account age-related anatomical and physiological characteristics.**	Test questions, Written report, Test items, Clinical cases, Demonstration of practical skills (description of gross and microscopic specimens).
	Is able to determine the principal indicators of a patient's physical development and functional status, taking into account age-related anatomical and physiological characteristics.	
	Has skills in determining the principal indicators of a patient's functional status and physical development, taking into account age-related anatomical and physiological characteristics.	

2. Examples of assessment tools and assessment criteria for ongoing monitoring

ID-3 GPC-5.3.

2.1. Examples of entry assessment:

1. Definition of inflammation
2. Protective barriers in a nonimmune organism
3. Inflammatory reactions
4. Cells mediating inflammatory reactions
5. Organs of the immune system
6. Phases of inflammation
7. Processes occurring during the alteration phase
8. Processes occurring during the exudation phase
9. Function of T lymphocytes
10. Function of B lymphocytes
11. Exudative inflammation: definition, causes, locations, and outcomes
12. Classification by type of exudate
13. Gross features of serous exudate
14. Definition of fibrinous inflammation.
15. Features of croupous inflammation
16. Features of diphtheritic inflammation
17. Gross features of fibrinous exudate
18. Microscopic features of fibrinous exudate
19. Definition of suppurative inflammation.
20. Gross features of purulent exudate
21. Microscopic features of purulent exudate
22. Define productive inflammation.
23. Course and morphology of productive inflammation.
24. What is granulation tissue?
25. What types of productive inflammation are there?
26. How do the various types of productive inflammation differ?
27. Examples of diseases associated with interstitial inflammation.
28. Which diseases are associated with granulomatous inflammation?

29. Name the causes of specific inflammation.
30. What is a specific granuloma?

Evaluation Criteria

Rating	Description
"passed"	Demonstrates a thorough understanding of the problem. All requirements for the task have been met
"not accepted"	Demonstrates a lack of understanding of the problem. Many requirements for the assignment have not been met. No answer. There was no attempt to solve the problem

2.2. Examples of test tasks:

ID-3 GPC-5.3.

Question name: Question No. 1
Microscopic features of pulmonary emphysema
1) Lipofuscin deposition in the cytoplasm
2) Dilated alveolar spaces
3) Thinned interalveolar septa
4) Capillary dilation
5) Formation of air-filled cavities

Question name: Question No. 2
Causes of hydronephrosis
1) Cicatricial ureteral stricture
2) Ovarian dysfunction
3) Urolithiasis
4) Prostatic adenoma

Question title: Question No. 3
Rheumatic fever is characterized by
1) Cloudy swelling
2) Mucoid swelling
3) Fibrinoid swelling
4) Fatty degeneration

Evaluation criteria, grading scale for test tasks

Rating		Description
"excellent"	5	Completed in full – 90%-100%
"good"	4	Not fully implemented – 80%-89%
"satisfactory"	3	Completed with deviation – 70%-79%
"unsatisfactory"	2	Partially completed – 69% or less correct answers

2.3. Examples of practical-skill demonstration algorithms

ID-3 GPC-5.3.

Practical-skill demonstration algorithm

Outline for examining and describing gross specimens:

item no.	Student action
1	Identified the organ or tissue.

item no.	Student action
2	Assessed organ size, consistency, surface features, color, and cut-surface pattern.
3	Identified and characterized pathological changes, including location, shape, color, size, and consistency.
4	Named possible causes of the gross changes.
5	Specified the ultrastructural, cytological, and histological changes corresponding to the gross findings.
6	Established the diagnosis of the pathological process or disease.
7	Assessed the clinical significance of the pathological process and stated possible complications and outcomes.

ID-3 GPC-5.3.

Outline for examining and describing microscopic specimens:

item no.	Student action
1	Identify the organ or tissue represented in the specimen.
2	Identify the staining or histochemical method.
3	Identify and sketch the pathological changes.
4	Determine the probable causes of the pathological changes.
5	Correlate the microscopic changes with the probable gross findings.
6	Assess the functional significance and probable outcomes of the identified changes.
7	Formulate the diagnosis of the pathological process or disease.

Assessment criteria and grading scale for practical-skill demonstration

Rating		**Description**
"excellent"	5	Knows the practical-skill procedure, indications, contraindications, possible complications, and standards, and independently demonstrates the skill without errors.
"good"	4	Knows the procedure, indications, contraindications, possible complications, and standards, and independently demonstrates the skill with minor inaccuracies that are promptly identified and corrected.
"satisfactory"	3	Knows the principal elements of the procedure, indications, contraindications, possible complications, and standards, and demonstrates the skill with errors that can be corrected with instructor guidance.
"unsatisfactory"	2	Does not know the procedure, indications, contraindications, possible complications, or standards and cannot independently demonstrate the skill, or makes major errors.

2.4. Examples of essay topics

ID-3 GPC-5.3.

1. Inflammation: definition, classification, protective mechanisms, and significance.
2. Protective mechanisms in the immune organism. Allergic reactions and their morphology.
3. Serous and catarrhal inflammation: causes, gross and microscopic features, and outcomes.
4. Exudative inflammation: causes, types, clinicopathological features, and outcomes.
5. Fibrinous inflammation: causes, types, gross and microscopic features, and outcomes.
6. Suppurative inflammation: causes, clinicopathological forms, gross and microscopic features, outcomes, and complications.

7. Productive inflammation: types, gross and microscopic features, and outcomes.
8. Gross and microscopic features of granulation tissue; essential components and evolution.
9. Tuberculosis. Tuberculous granuloma (epithelioid tubercle): structure and outcomes.
10. Syphilis. Syphilitic granuloma: structure and location.
11. Actinomycosis: etiology, nature of inflammation, and microscopic features.

Evaluation criteria, abstract grading scale

Rating		**Description**
"excellent"	5	All requirements for the written report are met: the problem and its relevance are stated, different viewpoints are briefly analyzed, the author's position is presented logically, conclusions are formulated, the topic is fully covered, and length and formatting requirements are observed.
"good"	4	The principal requirements are met, but there are deficiencies, including inaccuracies, lack of logical sequence, failure to observe the required length, and formatting omissions.
"satisfactory"	3	There are substantial departures from the requirements: the topic is only partially covered, factual errors are present, and no conclusion is provided.
"unsatisfactory"	2	The topic of the abstract is not disclosed, a significant misunderstanding of the problem is revealed, or the abstract is not presented at all

2.5. Examples of clinical cases:

ID-3 GPC-5.3.

Case No. 1

An 80-year-old woman was brought to hospital by ambulance with an acute abdomen and intestinal obstruction. At emergency laparotomy, the small-bowel loops were distended, black and dark red, and flaccid. The mesenteric arteries contained atherosclerotic plaques, and some lumina were occluded by thrombi.

Questions:

1. Name the process that developed in the small intestine.
2. State the cause of this intestinal process.
3. State the reasons for the black discoloration of the small-intestinal wall.
4. Where else can a similar pathological process develop?
5. Name the principal types of necrosis.

Case No. 2

A 35-year-old woman died from acute renal failure following massive uterine bleeding and hemorrhagic shock. Autopsy showed acute generalized anemia of the internal organs.

Questions:

1. What pathological process developed in the kidneys?
2. What is the pathogenetic basis of this renal process?
3. What condition is necessary for regeneration of the renal tubular epithelium in this disorder?
4. Name the favorable outcome of this renal process.
5. What other etiological factors can cause a similar renal process?

Case No. 3

A 94-year-old patient with ischemic cerebral infarction developed a sacral pressure ulcer.

Questions:

1. What pathological process developed in the brain tissue, and what names are used according to its consistency and color?
2. Name possible causes of this process in brain tissue.
3. Name the principal pathogenetic factor in the development of this process in brain tissue.
4. Name the favorable outcome of this process in brain tissue.
5. Of which type of necrosis is a sacral pressure ulcer a variant?

Assessment criteria and grading scale for clinical cases

Rating		**Description**
"excellent"	5	The solution is explained in detail, consistently, and accurately, with theoretical justification, the necessary diagrams and visual demonstrations, and correct, fluent use of terminology. Answers to additional questions are correct and clear.
"good"	4	The solution is detailed but not sufficiently logical, with isolated errors in detail and some difficulty with theoretical justification, diagrams, and visual demonstrations. Answers to additional questions are correct but insufficiently clear.
"satisfactory"	3	The explanation is incomplete and inconsistent, contains errors, and has weak theoretical justification. There are significant difficulties and errors in diagrams and visual demonstrations. Answers to additional questions are insufficiently clear and contain errors in detail.
"unsatisfactory"	2	The explanation is incomplete and inconsistent, contains major errors, and lacks theoretical justification. The student is unable to provide diagrams and visual demonstrations, or makes numerous errors. Answers to additional questions are incorrect or absent.

2.6. Indicative list of review questions:

ID-3 GPC-5.3.

1. What is an acute cardiac aneurysm?
2. List the outcomes of myocardial infarction.
3. Define hyperemia and list its types.
4. List the principal causes and types of local arterial hyperemia.
5. List the principal causes and types of generalized arterial hyperemia.
6. List the principal causes of local venous hyperemia.
7. Provide a clinicopathological definition of pulmonary edema.
8. What is a nutmeg liver?
9. What is nutmeg fibrosis of the liver?
10. Define a tumor.
11. State the principal risk factors for tumor development.
12. What is the genetic concept of carcinogenesis?
13. Describe the protein products of oncogenes.
14. Classify mutations.
15. What are tumor-suppressor genes?
16. State the molecular basis of multistep carcinogenesis.
17. List the stages of chemical carcinogenesis.
18. Describe radiation carcinogenesis.
19. State the features of viral carcinogenesis.
20. Describe antitumor immunity.
21. State the principles of tumor nomenclature.

22. List the principal tumor classifications.
23. Describe benign tumors.
24. Describe malignant tumors.

Evaluation criteria, assessment scale for control questions

Rating		Description
"excellent"	5	Knows all the educational material, understands it perfectly and has thoroughly mastered it. Gives correct, conscious and confident answers to questions (within the program). In oral answers he uses literary correct language and does not make mistakes.
"good"	4	Knows all the required educational material, understands it well and has mastered it firmly. Answers questions (within the program) without difficulty. In oral answers he uses literary language and does not make gross mistakes
"satisfactory"	3	Knows basic educational material. Answers questions (within the limits of the program) with difficulty. In oral answers, he makes mistakes when presenting the material and in constructing his speech.
"unsatisfactory"	2	Does not know most of the educational material, answers, as a rule, only to the teacher's leading questions, hesitantly. Makes frequent and serious mistakes in oral answers

3. Current control procedure

Ongoing assessment in the discipline is conducted through review questions, a written report, test items, clinical cases, and demonstration of practical skills (description of gross and microscopic specimens).

4. Examples of assessment tools and assessment criteria for intermediate certification

4.1. An approximate list of checklists for preparing for the test:

ID-3 GPC-5.3.

1. What is thrombosis?
2. Name the types of thrombi.
3. Name the favorable and unfavorable outcomes of thrombosis.
4. What is embolism?
5. What are the outcomes of thromboembolism?
6. What are the outcomes of cellular embolism?
7. What are the outcomes of microbial embolism?
8. What is an infarction?
9. What causes infarction?
10. What is myocardial infarction, and what causes it?
11. List the principal complications and causes of death in myocardial infarction.
12. Explain the mechanisms of tumor invasion and metastasis.
13. Provide a histogenetic classification of tumors.
14. Name the homeostatic disturbances associated with neoplasia.
15. Explain the mechanisms of tumor metastasis.
16. Provide a histological classification of tumors.
17. State the principles of TNM classification.
18. Name the theories of tumor morphogenesis.
19. Classify tumors of hematopoietic tissue.

20. List the differences between leukemias and lymphomas.
21. List the principles of leukemia classification.
22. State the morphological manifestations of leukemia.
23. Describe myeloproliferative neoplasms.

Evaluation criteria, assessment scale for control questions

Rating		Description
"excellent"	5	Knows all the educational material, understands it perfectly and has thoroughly mastered it. Gives correct, conscious and confident answers to questions (within the program). In oral answers he uses literary correct language and does not make mistakes.
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4.2. Examples of clinical cases:

ID-3 GPC-5.3.

Case No. 1

An 80-year-old woman was brought to hospital by ambulance with an acute abdomen and intestinal obstruction. At emergency laparotomy, the small-bowel loops were distended, black and dark red, and flaccid. The mesenteric arteries contained atherosclerotic plaques, and some lumina were occluded by thrombi.

Questions:

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2. State the cause of this intestinal process.
3. State the reasons for the black discoloration of the small-intestinal wall.
4. Where else can a similar pathological process develop?
5. Name the principal types of necrosis.

ID-3 GPC-5.3.

Case No. 2

A 35-year-old woman died from acute renal failure following massive uterine bleeding and hemorrhagic shock. Autopsy showed acute generalized anemia of the internal organs.

Questions:

1. What pathological process developed in the kidneys?
2. What is the pathogenetic basis of this renal process?
3. What condition is necessary for regeneration of the renal tubular epithelium in this disorder?
4. Name the favorable outcome of this renal process.
5. What other etiological factors can cause a similar renal process?

ID-3 GPC-5.3.

Case No. 3

A 94-year-old patient with ischemic cerebral infarction developed a sacral pressure ulcer.

Questions:

1. What pathological process developed in the brain tissue, and what names are used according to its consistency and color?
2. Name possible causes of this process in brain tissue.
3. Name the principal pathogenetic factor in the development of this process in brain tissue.
4. Name the favorable outcome of this process in brain tissue.
5. Of which type of necrosis is a sacral pressure ulcer a variant?

ID-3 GPC-5.3.

Case No. 4

An 80-year-old woman with class III obesity and diabetes mellitus has hyperglycemia and glycosuria, macroangiopathy and microangiopathy, circulatory failure, and hepatic and renal failure.

Questions:

1. Name the characteristic liver lesion in this patient.
2. Name the microscopic changes in hepatocytes.
3. Name the characteristic cardiac lesion in a patient with obesity and diabetes.
4. State the microscopic myocardial changes in heart failure.
5. Disturbance of which substances underlies atherosclerosis?

ID-3 GPC-5.3.

Case No. 5

A 70-year-old patient died from a rheumatic mitral-valve defect complicated by chronic cardiovascular failure.

Questions:

1. Name the changes in the mitral-valve leaflets found at autopsy as manifestations of the rheumatic defect.
2. What changes preceded the final mitral-leaflet abnormalities?
3. Name the cardiomyocyte changes occurring with decompensation of the heart defect.
4. Which heart valves are predominantly affected in rheumatic fever?
5. In which other diseases can sclerosis and hyalinosis of the heart valves develop?

ID-3 GPC-5.3.

Case No. 6

A 70-year-old patient had long-standing rheumatic heart disease and died from chronic cardiovascular failure. Autopsy showed generalized chronic venous congestion: indurated lungs; cyanotic, indurated kidneys and spleen; a firm mottled liver; ascites; hydrothorax; hydropericardium; and edema.

Questions:

1. What changes are present in the heart valves?
2. What process developed in the lungs?
3. Which pigment-metabolism disorder is characteristic of lung changes in chronic venous congestion?
4. Which stain should be used to confirm this pigment-metabolism disorder?
5. The presence of which cells in sputum could have indicated the lung changes during life?

Assessment criteria and grading scale for clinical cases

Rating		**Description**
"excellent"	5	The solution is explained in detail, consistently, and accurately, with theoretical justification, the necessary diagrams and visual

		demonstrations, and correct, fluent use of terminology. Answers to additional questions are correct and clear.
"good"	4	The solution is detailed but not sufficiently logical, with isolated errors in detail and some difficulty with theoretical justification, diagrams, and visual demonstrations. Answers to additional questions are correct but insufficiently clear.
"satisfactory"	3	The explanation is incomplete and inconsistent, contains errors, and has weak theoretical justification. There are significant difficulties and errors in diagrams and visual demonstrations. Answers to additional questions are insufficiently clear and contain errors in detail.
"unsatisfactory"	2	The explanation is incomplete and inconsistent, contains major errors, and lacks theoretical justification. The student is unable to provide diagrams and visual demonstrations, or makes numerous errors. Answers to additional questions are incorrect or absent.

4.3. Examples of practical-skill demonstration algorithms

ID-3 GPC-5.3.

Practical-skill demonstration algorithm

Outline for examining and describing gross specimens:

item no.	Student action
1	Identified the organ or tissue.
2	Assessed organ size, consistency, surface features, color, and cut-surface pattern.
3	Identified and characterized pathological changes, including location, shape, color, size, and consistency.
4	Named possible causes of the gross changes.
5	Specified the ultrastructural, cytological, and histological changes corresponding to the gross findings.
6	Established the diagnosis of the pathological process or disease.
7	Assessed the clinical significance of the pathological process and stated possible complications and outcomes.

ID-3 GPC-5.3.

Outline for examining and describing microscopic specimens:

item no.	Student action
1	Identify the organ or tissue represented in the specimen.
2	Identify the staining or histochemical method.
3	Identify and sketch the pathological changes.
4	Determine the probable causes of the pathological changes.
5	Correlate the microscopic changes with the probable gross findings.
6	Assess the functional significance and probable outcomes of the identified changes.
7	Formulate the diagnosis of the pathological process or disease.

Assessment criteria and grading scale for practical-skill demonstration

Rating		**Description**
"excellent"	5	Knows the practical-skill procedure, indications, contraindications, possible complications, and standards, and independently demonstrates the skill without errors.
"good"	4	Knows the procedure, indications, contraindications, possible complications, and standards, and independently

Rating		Description
		demonstrates the skill with minor inaccuracies that are promptly identified and corrected.
"satisfactory"	3	Knows the principal elements of the procedure, indications, contraindications, possible complications, and standards, and demonstrates the skill with errors that can be corrected with instructor guidance.
"unsatisfactory"	2	Does not know the procedure, indications, contraindications, possible complications, or standards and cannot independently demonstrate the skill, or makes major errors.

Evaluation criteria, grading scale pass/fail

Rating	Description
"passed"	Demonstrates a thorough understanding of the problem. Knows the basic concepts within the framework of the issue under discussion, methods of study and their relationship with each other, practical problems and has an idea of promising directions for developing the issue under consideration
"not accepted"	Demonstrates a lack of understanding of the problem. Does not know the basic concepts, methods of study, within the framework of the issue being discussed, has no idea about the main practical problems

5. Intermediate assessmentprocedure

Intermediate assessmentin the discipline is conducted as a pass/fail assessment and includes review questions, clinical cases, and a practical skill.