

AMENDMENTS AND CHANGES TO THE CURRICULUM IN THE EDUCATIONAL DISCIPLINE
«HISTOLOGY, CYTOLOGY, EMBRYOLOGY»
for the specialty 7-07-0911-03 Dentistry
for 2024/2025 academic year

Amendments and changes	Basis/Reason
1. Changes have been introduced into the Thematic Plan (appendix 2)	Educational Plan for 2024/2025 academic year
2. Changes have been introduced into the Educational Discipline Curricular Chart (appendix 3)	Educational Plan for 2024/2025 academic year
3. List of practical skills has been added	Educational Plan for 2024/2025 academic year

The curriculum is revised and approved at the department meeting *name of the department*
(protocol #12 of 20.06.2024)

Head of the Human morphology department
MD, DSc, Professor, SL Kabak

APPROVED
Dean of the Medical Faculty
for International Students
MD, PhD, Associate professor OS Ishutin

THEMATIC PLAN

Section (topic) name	Number of class hours	
	lectures	laboratory
1. Introduction into the course of histology. Histology as a science	-	2
2. Cytology	-	2
3. Embryology	1,5	4
4. General histology	9	28
4.1.Introduction to tissues	-	2
4.2.Epithelial tissues	1,5	2
4.3.Blood and hematopoiesis	1,5	8
4.4.Connective tissues	3	8
4.5.Muscle tissues	1,5	4
4.6.Nervous tissue	1,5	4
5. Special histology	10,5	72
5.1.Cardiovascular system	-	4
5.2.Lymphoid system	1,5	8
5.3.Endocrine glands	1,5	4
5.4.Nervous system and sense organs	1,5	16
5.5.Digestive system	3	16
5.6.Integumentary system	-	4
5.7.Respiratory system	1,5	4
5.8.Urinary and genital systems	1,5	16
6. Dentoalveolar system	-	36
6.1.Glands of the oral cavity	-	7
6.2.Tooth structure	-	11
6.3.Periodontium	-	3
6.4.Tooth development	-	7
6.5.Morphogenesis of the face and oral cavity	-	8
Total hours	21	144

ACADEMIC DISCIPLINE CURRICULAR CHART

Section, topic #	Section (topic) name	Number of hours		Supervised student independent work	Practical skills	Form of control	
		lectures	practical (laboratory or seminars)			of practical skills	of current / intermediate assessment
	1st semester						
	Lectures	12					
3	<i>Fundamentals of human embryology</i>	1,5					
4.2	<i>General characteristics of tissues. Epithelial tissues</i>	1,5					
4.3	<i>Structure and function of blood cells. Hematopoiesis</i>	1,5					
4.4	<i>Histophysiology of connective tissues. Characteristics of connective tissue proper. Specialized connective tissues</i>	1,5					
4.4	<i>Morphofunctional characteristics of skeletal tissues. Cartilage and bone tissues</i>	1,5					
4.5	<i>General morphofunctional characteristics of muscle tissues</i>	1,5					
4.6	<i>Histophysiology of nervous tissue</i>	1,5					

5.1	<i>Histophysiology of the cardiovascular system</i>	1,5					
	Laboratory lessons						
1	<i>Introduction into the course of histology.</i> <i>Histology as a science</i> <i>Lab. w. Objects and methods of research in histology and cytology. The main steps of histological slides preparation. Rules of working with a light microscope</i> 1. Methodological and applied value of histology, cytology and embryology, their connection with other medical and biological sciences. 2. Types and techniques for preparation of histology slides. 3. Principles and methods of tissue fixing in histology. Preparation of histology slides. Principles and methods of histological staining. The concept of basophilia and oxyphilia. 4. Methods for studying the chemical composition of cells and tissues. 5. Instruments and research methods in light and electron microscopy.	2			Diagnosics of histological preparations	Identification of cells and tissues in histological preparations	Interview, computer tests
2	Cytology <i>Lab. w. Fundamentals of cytology</i> 1. The concept of a cell as a basic unit of living things. Cell theory. Extracellular matrix. 2. Biological membranes. The major components of plasma membrane. Types of cell junctions. Methods by which substances pass through the cell membrane. 3. Morphofunctional classification of intracellular structures. The concept of organelles and inclusions. 4. Classification of organelles based on their structure: membranous and non-membranous	2			Diagnosics of histological preparations	Identification of cells and tissues in histological preparations *	Interview, computer tests

	organelles. Their structure, function. Classification of inclusions. 5. Cell nucleus. Function and structure of the nucleus in interphase. 6. Cell division: mitosis, endoreduplication. Cell cycle.						
3	Embryology <i>Lab. w. Fundamentals of human embryology. Developmental periods. Fertilization. Cleavage. Gastrulation. Mechanisms of organogenesis and histogenesis</i> 1. Concept of embryogenesis. Connections between phylogeny and ontogeny. 2. Developmental periods. 3. Gametogenesis. Morphological and functional characteristics of mature human gametes. 4. Fertilization and zygote formation. 5. Cleavage and formation of the blastocyst. 6. Completion of implantation of blastocyst. Implantation sites. 7. Gastrulation. Histiotrophic and hemotrophic nutrition. 8. Organogenesis and histogenesis. 9. Differentiation of germ layers and their derivatives. 10. Extraembryonic membranes: sources of development and functions. 11. Placenta. Structure and function. 12. Critical periods in human development.	4		Diagnostics of histological preparations	Identification of cells and tissues in histological preparations	Interview, computer tests	
4	General histology	28					
4.1	<i>Introduction into the course of histology. Histology as a science</i> <i>Lab. w. General principles of structural</i>	2		Diagnostics of histological	Identification of cells and tissues	Interview, computer tests,	

	<i>organization of tissues: cells, extracellular matrix. The structure of the surface epithelium. Morphology of the glandular epithelium</i>				preparations	in histological preparations	filling flash cards
	1. Definition of the concept of "tissue". Classification of tissues. 2. General principles of the structural organization of tissues: cells, extracellular matrix. 3. The concept of syncytia and postcellular structures. 4. Cell-differon organization of the tissue.						
4.2	<i>Epithelial tissues.</i>		2				
	<i>Lab. w. The structure of the surface epithelium. Morphology of the glandular epithelium</i>				Diagnostics of histological preparations	Identification of cells and tissues in histological preparations	Interview, computer tests, filling flash cards
	1. Definition of the tissue. Classification of tissues. 2. Morphofunctional characteristics of epithelial tissues. Regenerative capacity. 3. Developmental sources of epithelia. Classification and types of epithelial tissues. 4. Micro- and ultramicroscopic characteristics of simple epithelia. Intercellular junctions. 5. Stratified epithelia. 6. Histophysiology of glandular epithelium. Characteristics of secretory cells. 7. Glandulocytes secretory cycle, its phases. Types of exocrine secretion. 8. Classification of exocrine glands. The regeneration of glandular epithelium.						
			2				
4.3	<i>Blood and hematopoiesis</i>		8				
	<i>Lab. w. General morphology of blood and lymph. Structure and functions of blood cells.</i>		4		Diagnostics of histological	Identification of cells and tissues	Interview, computer tests,

<i>Hematopoiesis</i> 1. Blood and lymph as types of vascular connective tissues. 2. Functions of the blood. 3. The blood plasma as a variety of extracellular matrix. 4. Blood cells: size, structural features, functions, lifespan. 5. Blood count, leukogram. 6. Stem hematopoietic cell. 7. Embryonic hematopoiesis: in the yolk sac, in the liver, in the red bone marrow, in the spleen. 8. Erythropoiesis. 9. Granulopoiesis. 10. Monocytopoiesis. Mononuclear phagocyte system. 11. Thrombopoiesis. 12. Lymphopoiesis in the central and the peripheral lymphoid organs. T-and B-lymphocytes.			preparations	in histological preparations*	filling flash cards
<i>Lab. w. General principles of development and structural organization of body tissues. Final class on the topics: «Cytology», «Embryology», «Epithelial tissues», «Blood and hematopoiesis»</i> 1. Histogenesis and possibilities of physiological regeneration of epithelial tissues. 2. Features of embryonic and postembryonic hematopoiesis. 3. Blood count, clinical significance of blood test indicators. Leukogram of an adult, left shift in the blood testing. 4. Cellular and humoral immunity. Cooperative interactions between macrophages, T-and B-lymphocytes.			Diagnostics of histological preparations	Identification of cells and tissues in histological preparations	Colloquium*. Situational tasks

4.4	<i>Connective tissues</i> <i>Lab. w. General principles of connective tissue organization. Connective tissue proper: loose and dense. Specialized connective tissues</i> 1. Classification, sources of development, and general morphofunctional characteristics of connective tissues. 2. Histogenesis, structure and functions of loose connective tissue. 3. Relationship between blood cells and loose connective tissue cells. 4. Structure and functions of dense connective tissues. 5. The structure and functions of specialized connective tissues. 6. Reticular tissue: structural features, localization. 7. Pigment tissue: structural features, localization. 8. White and brown adipose tissue: structural features, localization. 9. Reaction of connective tissues to damage: inflammation, reparative regeneration.		8		
			Diagnostics of histological preparations	Identification of cells and tissues in histological preparations	Interview, computer tests, filling flash cards
	<i>Lab. w. Skeletal tissues. Morphofunctional characteristics of cartilage: classification, cells and extracellular matrix, growth, histogenesis, regeneration. Morphofunctional characteristics of bone tissues: classification, cells and extracellular matrix, growth, histogenesis, regeneration</i> 1. General morphofunctional characteristics and classification of skeletal tissues. 2. Structure of cartilaginous tissues (cells, extracellular matrix). 3. Sources of development, growth, regeneration and age-related changes of cartilage. Perichondrium: structure and functions.		4		Interview, computer tests, filling flash cards

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	characteristics, sources of development. 2. Neurons. 3. Neuroglia.						
	4. Structure of unmyelinated and myelinated nerve fibers. Degeneration and regeneration of nerve fibers. 5. Nerve endings: classification, general morphofunctional characteristics; a. receptor and effector nerve endings: classification, structure; b. interneuronal synapses: classification, structure, mechanisms of nerve impulse transmission.						
	2nd semester						
	Lectures	9					
5.2	<i>Primary and secondary lymphoid organs</i>	1,5					
5.3	<i>Histophysiology of the endocrine system</i>	1,5					
5.4	<i>Histophysiology of the sense organs</i>	1,5					
5.5	<i>Histophysiology of the digestive system</i>	1,5					
5.7	<i>Histophysiology of the respiratory system</i>	1,5					
5.8	<i>Histophysiology of the genital systems</i>	1,5					
	Laboratory lessons						
	<i>Special histology</i>		72				
5.1	<i>Cardiovascular system.</i> <i>Lab. w. Microscopic structure of blood vessels and the heart wall</i> 1. General morphofunctional characteristics of the cardiovascular system. 2. Classification of blood vessels. General plan of structure their walls, source of development. 3. Arteries. Classification. Dependence of the artery wall structure on haemodynamic conditions. 4. Veins. Classification. Influence of haemodynamic conditions on the vein wall structure.		4		Diagnostics of histological preparations	Identification of cells and tissues in histological preparations	Interview, computer tests, filling flash cards

	5. Microcirculation. The structure and functions of the arterioles, venules and capillaries. Arterio-venous anastomoses. 6. Lymphatic vessels. Classification. Structure. 7. Heart. Sources of development. The structure of the layers of heart wall. 8. Cardiac conduction system. Comparative characteristics of typical, conducting, and secretory cardiomyocytes. 9. Vascularization, innervation and regeneration of blood vessels and the heart. Age-related changes.				
5.2	<i>Lymphoid system</i>	8			
	<i>Lab. w. Primary lymphoid organs. Red bone marrow. Thymus</i> 1. General morphofunctional characteristics of the organs of the lymphoid system. 2. The concept of primary and secondary organs of the lymphoid system. 3. Red bone marrow. Development, structure, functions. 4. Age-related changes in the red bone marrow. 5. Thymus. Development, structure, function. 6. Blood-thymic barrier. Age-related and accidental thymic involution. 7. Endocrine function of the thymus.	4	Diagnostics of histological preparations	Identification of cells and tissues in histological preparations	Interview, computer tests, filling flash cards
	<i>Lab. w. Secondary lymphoid organs. Lymph node. Spleen. Tonsil</i> 1. General principles of the structural organization of the secondary organs of the lymphoid system. 2. Lymph nodes. Development, structure, functions, age-related changes. 3. T and B zones of lymph nodes, their dynamics during the immune response. 4. Spleen. Development, structure, functions.	4	Diagnostics of histological preparations	Identification of cells and tissues in histological preparations	Interview, computer tests, filling flash cards

	Features of blood circulation. 5. T and B zones of the spleen. Age-related changes in the spleen. 6. Lymphoid tissue associated with mucous membranes (MALT). Development, structure, functions of the tonsils.									
5.3	Endocrine glands. <i>Lab. w. Microscopic structure of the pituitary gland, epiphysis, thyroid and parathyroid glands, adrenal gland</i> 1. Endocrine system (organs and cells with endocrine functions). The concept of neuroendocrine regulation in the body, target organs. 2. Hypothalamus, microscopic structure, functions. 3. Hypothalamic-pituitary relationships. Pituitary. Sources of its development. Structure, blood supply and histophysiology. 4. Epiphysis: sources of development, microscopic structure, functions. 5. Thyroid and parathyroid glands, development, structure, significance for the body. Histophysiology of the secretory cycle. 6. Adrenal gland. Sources of development, microscopic structure of the cortex and medulla. Hypothalamo-pituitary-adrenal axis. 7. Age-related changes in the adrenal glands.					4		Diagnostics of histological preparations	Identification of cells and tissues in histological preparations	Interview, computer tests, filling flash cards
						4				
5.4	Nervous system and sense organs <i>Lab. w. Peripheral nervous system. Microscopic structure of the nerve, sensory and autonomic ganglia</i> 1. General morphofunctional characteristics of the nervous system. Sources of development. Classification.					16		Diagnostics of histological preparations	Identification of cells and tissues in histological preparations	Interview, computer tests, filling flash cards
						4				

	2. Somatic reflex arc. 3. Microscopic structure of the nerve trunk and sensory ganglia. 4. Autonomic nervous system. General morphofunctional characteristics, divisions. 5. Composition of the central and peripheral autonomic reflex arcs. 5. Cellular composition of the autonomic ganglia.				
	<i>Lab. w. Central nervous system. Microscopic structure of the spinal cord, cerebellar cortex and cerebral cortex</i> 1. Spinal cord. Morphofunctional characteristics. Structure of gray and white matter. 2. Cerebrum, morphological types of neurons of the cerebral cortex. 3. Cyto- and myeloarchitectonics maps of the cerebral cortex. Granular and agranular cortex. 4. Cerebellum. Histological structure of the cerebellar cortex. 5. Neuronal organization of the cerebellar cortex. 6. Histological structure of the meninges of the brain and spinal cord. 7. Blood-brain barrier and blood-cerebrospinal fluid barrier, structure and functional significance.		Diagnostics of histological preparations	Identification of cells and tissues in histological preparations	Interview, computer tests, filling flash cards
	<i>Lab. w. Sense organs. Microscopic structure of the eyeball and inner ear</i> 1. Classification of the sense organs. The concept of analyzers and their main departments. 2. Morphofunctional characteristics of sensory cells. 3. Sources of development of the eyeball. 4. Microscopic structure of the cornea, lens, vitreous body. 5. Microscopic structure of the ciliary body and	4	Diagnostics of histological preparations	Identification of cells and tissues in histological preparations*	Interview, computer tests, filling flash cards

iris. 6. Microscopic structure of the retina. 7. Microscopic structure of the vestibular labyrinth. 8. Microscopic structure of the cochlear labyrinth. 9. Spiral (Corti) organ. Histophysiology of hearing. 10. Sources of development, microscopic structure of the organ of taste, cytophysiology of reception. 11. Sources of development, microscopic structure of the olfactory organ, cytophysiology of reception.						
<i>Lab. w. Final class on the topic: «Histophysiology of the regulatory systems of the body»</i> 1. Neuroendocrine regulation in the body. 2. Reflex action of the nervous system. 3. Structure and functional significance of hypothalamic neurosecretory system. 4. Negative feedback systems in hormonal control. 5. Hypothalamo-pituitary-adrenal axis and nervous regulation of adrenal medulla. 6. Participation of the adrenal glands in the adaptation reactions of the organism under stress.						Colloquium*. Situational tasks
5.5 <i>Digestive system</i> <i>Lab. w. Microscopic structure of the oral mucosa. Lip, gingiva, cheek, palate, tongue</i> 1. Masticatory and lining oral mucosa. 2. Structure of the lips. Labial glands. 3. Microscopic structure of the gingiva. 4. Structure of the buccal mucosa. Buccal glands. 5. Hard palate. Features of the microscopic structure of various zones.	4 16					Diagnosics of histological preparations Identification of cells and tissues in histological preparations Interview, computer tests, filling flash cards

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	5. Structure of the wall and functional features of the appendix.								
	6. Features of the structure of the wall of the rectum. The structure of the wall of the anal canal.								
	<i>Lab. w. Microscopic structure of the liver and pancreas. Final control in the section «Digestive system»</i>								
	1. Functions of the liver, sources of its development in embryogenesis.								
	2. The structure of the classic hepatic lobule, portal lobule, hepatic acinus.								
	3. Microvasculature of the liver.								
	4. Age features of the structure of the liver and mechanisms of its regeneration.								
	5. Histological structure of the wall of the bile ducts and gallbladder.								
	6. Functions of the exocrine and endocrine parts of the pancreas; development of the pancreas in embryogenesis.								
	7. The structure of the exocrine pancreas.								
	8. The structure of the endocrine pancreas.								
	5.6 <i>Integumentary system.</i>								
	<i>Lab. w. Microscopic structure of the skin and its derivatives</i>								
	1. Morphofunctional characteristics of the skin and the sources of its development.								
	2. Cellular composition and histophysiology of the epidermis. The process of keratinization and regeneration of the epidermis.								
	3. Histophysiology of the dermis.								
	4. Features of the tissue organization of the papillary and reticular layers of the dermis.								
	5. Blood supply and innervation of the skin. Features of the skin receptor apparatus.								

	6. Histophysiology and topography of sweat and sebaceous glands, sources of their development. 7. Development, structure and types of hair.								
5.7	<i>Respiratory system.</i> <i>Lab. w. The microscopic structure of the conducting and respiratory portions</i> 1. Morphofunctional characteristics of the respiratory system: conducting and respiratory zones. 2. Sources of development of the respiratory system in embryogenesis. 3. Features of the microscopic structure of the mucous membranes of the nasal cavity, nasopharynx and larynx. 4. Microscopic structure of the tracheal wall. 5. Microscopic structure of the walls of bronchi and bronchioles. 6. The structure of the respiratory portion of the respiratory system: respiratory bronchioles, alveolar ducts, alveolar sacs, alveoli. 7. The concept of the blood-air barrier. 8. The role of the pulmonary surfactant surfactant. 9. Extracellular and intracellular surfactant.			4		Diagnostics of histological preparations	Identification of cells and tissues in histological preparations	Interview, computer tests, filling flash cards	
				4					
5.8	<i>Urinary and genital systems</i> <i>Lab. w. Microscopic structure of the kidney, ureter, bladder</i> 1. Sources and stages of embryonic development of the kidney. 2. Structure of the kidney: cortex and medulla. Cortical and juxamedullary nephrons. 3. Histophysiology of the renal corpuscle, filtration membrane. 4. Histophysiology of proximal, thin, distal tubules of nephron and collecting ducts.			16		Diagnostics of histological preparations	Identification of cells and tissues in histological preparations	Interview, computer tests, filling flash cards	
				4					

5. The mechanism of urine formation. 6. Blood supply to the kidney. Features of blood circulation of juxtamedullary nephrons. 7. Endocrine function of the kidneys. Juxtaglomerular apparatus. Hormonal regulation of urine formation. 8. The structure of the wall of the ureter and urinary bladder.						
<i>Lab. w. Microscopic structure of the male reproductive system organs: testis, genital ducts, prostate</i> 1. Morphofunctional characteristics of the male reproductive system and the sources of its development. 2. Microscopic structure of the testis. 3. Sperm production and testosterone secretion by the testis. Age-related changes in the testis. 4. Spermatogenesis, its stages. 5. Microscopic structure of the epididymis and other genital ducts. 6. Microscopic structure and functions of the prostate, seminal vesicles, bulbourethral glands.	4					
<i>Lab. w. Microscopic structure of the organs of the female reproductive system: ovary, uterus</i> 1. Morphofunctional characteristics of the female reproductive system and the sources of its development. 2. Microscopic structure of the ovary. Types of follicles, follicular atresia, structure of the atretic follicle. 3. Oogenesis, its stages. Difference between oogenesis and spermatogenesis. 4. Ovulation. Corpus luteum, its growth and development, functional significance.	4					
					Identification of cells and tissues in histological preparations	Interview, computer tests, filling flash cards
					Diagnostics of histological preparations	Interview, computer tests, filling flash cards

	5. Corpus albicans.						
	6. Endocrine function of the ovaries, its regulation. Age-related changes.						
	7. Microscopic structure of the fallopian tube wall.						
	8. Microscopic structure of the uterine wall. Cyclic and age-related changes.						
	9. Menstrual cycle, its regulation.						
	10. Microscopic structure of the vaginal wall. Cyclic changes.						
	Lab. w. Final class on the topics: «Integumentary system», «Respiratory system», «Urinary system», «Male reproductive system», «Female reproductive system»		4				Colloquium*. Situational tasks. Credit
	3rd semester						
6.1	Laboratory lessons						
	Dentoalveolar system		36				
	Glands of the oral cavity		7				
	Lab. w. The principles of the structural organization of the salivary glands. Microscopic structure of the parotid, submandibular and sublingual glands						Interview, computer tests, filling flash cards
	1. Principles of structural organization of the major salivary glands.						
	2. Structure of the secretory units and excretory ducts						
	3. Structural features of the parotid, submandibular and sublingual gland.						
	4. Comparative characteristics of the secretory portions of the parotid, submandibular and sublingual glands.						
	Lab. w. Glands of the oral cavity. Microscopic structure of minor salivary glands		4				
	1. Composition and functions of saliva. Saliva as an object of research and diagnostics.		3				
							Interview, computer tests, filling flash cards
							Identification of cells and tissues in histological preparations

	Endocrine function of the salivary glands. 2. Topography and structural features of minor salivary glands. 3. Age-related changes in the salivary glands.								
6.2	Tooth structure	11							
	Lab. w. General plan of the structural organization of the tooth. Microscopic structure of enamel. Metabolism, nutrition, age-related changes in enamel 1. General plan of the structural organization of the tooth. Functions of the teeth. 2. General characteristics of enamel, its functions. Structure of enamel: enamel rod, interrod enamel. 3. Optical phenomenon on longitudinal ground sections of tooth (Hunter-Schreger bands). 4. Incremental growth lines in enamel. 5. Enamel lamellae, tufts, spindles. Dentino-enamel junction. 6. Remineralization and demineralization of enamel. 7. Surface coatings of enamel (perikymata, cuticle, pellicle, dental plaque, calculus), their composition and functions.	4							
	Lab. w. Microscopic structure of dentin. Blood supply, innervation, physiologic and reparative regeneration of dentin 1. Types of dentine (according to topography, pattern and degree of mineralization). Physical properties and chemical composition of dentin. 2. Microscopic structure of the dentin. Dentinal fluid. 3. Predentin, mantle dentin and circum-pulpal dentin. 4. Primary, secondary and tertiary dentin.	3							

	5. Denticles. Pathological changes in dentin. <i>Lab. w. Microscopic structure of the tooth pulp. Functions, blood supply, innervation, age-related changes in the pulp. Periodontium. Cementum: cellular and acellular</i>			Diagnostics of histological preparations	Identification of cells and tissues in histological preparations	Interview, computer tests, filling flash cards
	1. General characteristics and functions of the pulp.					
	2. Microscopic structure of the pulp, blood supply and innervation.					
	3. Differences between the coronal and root pulp.					
	4. Differences between the pulp of deciduous and permanent teeth.					
	5. Regeneration and age-related changes in the pulp. Denticles.					
	6. Structural organization of the tooth supporting apparatus.					
	7. General characteristics and functions of cementum. Acellular and cellular cementum.					
	8. Participation of cementum in reparative processes. Hypercementosis, its types.		4			
6.3	<i>Periodontium</i>		3			
	<i>Lab. w. Microscopic structure of the periodontal ligament, blood supply and innervation. Alveolar bone. Histologic changes during tooth movement. Histological aspects of endosseous dental implantation</i>			Diagnostics of histological preparations	Identification of cells and tissues in histological preparations	Interview, computer tests, filling flash cards
	1. Microscopic structure of the periodontal ligament. Dentoalveolar and gingival groups of fibers. Blood supply and innervation.					
	2. Epithelial rests in the periodontal ligament.					
	3. Physiological and reparative rearrangement of the desmodont.					
	4. The value of gingival fluid to maintain the normal state of periodontal tissues.		3			

	5. The role of periodontium in orthodontic tooth movement. 6. Alveolar bone: alveolar bone proper and supporting bone. 7. Histological changes in periodontal tissues during tooth movement. 8. Histological aspects of endosseous implantation of teeth.						
6.4	<i>Tooth development</i> <i>Lab. w. Development of the tooth in embryogenesis. Formation of the tooth germ. Morphogenesis of the tooth crown. Organogenesis of the roots of teeth. Tooth eruption. Congenital anomalies in the tooth development.</i> 1. Sources of development of tooth tissues. 2. Stages of tooth development: initiation, bud, cap, and bell stages. 3. Histogenesis of dentin and enamel. 4. The development of dental pulp and periodontium. 5. Mechanisms of eruption of deciduous and permanent teeth. 6. Anomalies of the tooth structure and malformations of the teeth. 7. Clinical manifestations of violations of the early stages of tooth development. 8. Violations of dentinogenesis and enamelogenesis associated with insufficiency of alimentary factors and general diseases.	7	Diagnostics of histological preparations	Identification of cells and tissues in histological preparations	Interview, computer tests, filling flash cards		
	<i>Lab. w. Final class on the topic «Structure and development of tooth and its supporting tissues»</i>	3			Colloquium *		
6.5	<i>Morphogenesis of the face and oral cavity</i> <i>Lab. w. Pharyngeal apparatus, its structures and derivatives</i>	8	Diagnostics of histological	Identification of cells and tissues	Interview, computer tests,		
		4					

1. Formation of the stomodeum. 2. The development of the face and oral cavity, upper and lower jaws 3. The development of the palate, the formation of the nasal and oral cavities. 4. Tongue and thyroid development. 5. Structures of the pharyngeal apparatus. 6. Derivatives of pharyngeal arches, pouches, and clefts.				filling flash cards
<i>Lab. w. Congenital malformations of the face and neck. Prevention of congenital pathology</i> 1. The significance of external risk factors for the occurrence of congenital malformations. 2. Endogenous factors as the cause of malformations. 3. Congenital dentomaxillofacial anomalies. Influence of defects of the maxillofacial region on the development and health of children. 4. Anomalies in the development of the face: macrostomia, microstomia, cleft lip, cleft palate. 5. Congenital neck cysts. 6. Congenital malformations associated with anomalies in the development of pharyngeal arches.	3		preparations	in histological preparations
<i>Final class on the topic «Morphogenesis of the face and oral cavity, congenital disorders of the face and neck»</i>	1			Interview, computer tests, filling flash cards Colloquium*. Situational tasks

LIST OF PRACTICAL SKILLS

Name of practical skills	Form of practical skills control
1. Diagnostics of histological preparations	Interview, computer tests, filling flash cards

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Head of the Human morphology department

MD, DSc, Professor, _____ SL Kabak

APPROVED

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