


УТВЕРЖДАЮ
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**CALENDAR AND THEMATIC PLAN of
laboratory and practical classes in botany
for 2nd-year students of the Faculty of Pharmacy
for the autumn-winter semester of the 2024-2025 academic year**

№	DATE	The name of the thematic blocks of the basic part of the discipline	Topics of classes included in the thematic block	BASIC QUESTIONS FOR PREPARATION
1.	02.09.2024 07.09.2024	Fundamentals of botanical microtechnics. The structure of the plant cell.	The structure of botanical microtechnics	1. The structure of the microscope. Working rules. 2. The method of preparation of micro-preparations.
			The structure of the plant cell	3. Protoplast and its components (cytoplasm, nucleus). 4. Protoplast derivatives. 5. Differences between plant, fungal and animal cells.
2.	09.09.2024 14.09.2024		Structure and osmotic properties of plant cells	1. The most important property of cytoplasm is semipermeability, its essence. 2. Types of cytoplasm movement. 3. The vacuole, its significance in the life of the cell.
			Plastids	4. Concepts: osmotic pressure, turgor pressure, sucking force of the cell. 5. The phenomenon of plasmolysis and deplasmolysis. 6. Types of plastids, their biological significance and differences in structure.
3.	16.09.2024 21.09.2024		Cell wall, cystoliths.	1. The structure of the cell wall, its origin and chemical composition 2. Spare substances, their role in the vital activity of the plant cell. a) the formation and structure of starch grains.
			Cellular inclusions used for the diagnosis of plant raw materials.	b) proteins, their localization in the cell, the forms of deposition. c) fats, localization in the cell, forms of their deposition. 3. Excretory substances used for the diagnosis of plant raw materials. Types crystal inclusions.

				The biological meaning of the formation of calcium oxalate crystals.	
4.	23.09.2024 28.09.2024	Final thematic block: "Plant cell"	Control intermediate testing.		
			Final lesson on the topic: "Plant cell" Questions for the final lesson are on the stand and in the laboratory room.		
5.	30.09.2024 05.10.2024	Plant tissues	Meristems -1	1. Define the plant tissue. 2. Classification of plant tissues. 3. Meristems: a) primary and secondary meristems, their origin. b) apical meristems, the theory of the tunic and the body of A. Schmidt.	
			Meristems -2	c) lateral, insertion, wound meristems, their structure and functions. 4. The role of meristems in the plant.	
6.	07.10.2024 12.10.2024		Primary and secondary cover tissues	1. Determination of the cover tissue. The role of the cover tissue in the plant. 2. Origin and structure of primary and secondary cover tissues. 3. Features of the structure of the cells of the epidermis of the leaf of monocotyledonous and dicotyledonous plants.	
			Trichomes and emergents.	4. The structure of stomata and types of stomatal apparatuses. 5. The structure and functions of the periderm. 6. The structure and formation of the crust. 7. Forms and types of trichomes, as diagnostic and systematic signs. The structure and functions of simple and glandular trichomes. 8. The structure and functions of emergents. The main differences between trichomes and emergents.	
7.	14.10.2024 19.10.2024		Conducting tissues of ascending and descending currents. Types of vascular-fibrous bundles.	1.What is the ascending and descending current of substances? 2. Conducting elements of the phloem. 3.Conducting elements of xylem. 4.Types of conducting beams, their characteristics.	
8.	21.10.2024 26.10.2024	Final thematic block: "Plant tissues"	Control intermediate testing.		

			Final lesson on the topic: "Plant tissues" Questions for the final lesson are on the stand and in the laboratory room.	
9.	28.10.2024 02.11.2024	Vegetative organs of plants	The primary anatomical structure of the root	1. The primary anatomical structure of the root. 2. Transition to the secondary structure of the root in dicotyledonous plants. 3. The secondary structure of the root. 4. Features of the anatomical structure of the roots of herbaceous and woody dicotyledonous plants. 5. Morphology of the root. Types roots and root systems. 6. Metamorphoses of the root
			Secondary anatomical structure of the root	
10.	04.11.2024 09.11.2024		Anatomical structure of the stems of dicotyledonous herbaceous plants	1. The location of the tissues in the herbaceous stem. 2. Mechanical tissues and their functions. The structure of collenchyma and sclerenchyma. 3. Basic tissues. Their classification. 4. Differences in the anatomical structure of the stems of monocotyledonous and dicotyledonous plants
			Anatomical structure of the stems of monocotyledonous plants	5. Morphology of the escape. Metamerism of shoot. 6 Metamorphoses of shoot.
11.	11.11.2024 16.11.2024		Anatomical structure of the stems of woody dicotyledonous plants	1. The structure of the primary cortex. 2. The structure of the bast. 3. The structure of wood. 4. Features of the structure of coniferous stems.
			Anatomical structure of the stems of coniferous plants	
12.	18.11.2024 23.11.2024		Anatomical structure of the leaf -1	1. The leaf, its morphofunctional features. 2. The anatomical structure of the leaf in connection with its functions and external environmental conditions. 3. The conducting system of the leaf, its connection with the conducting system of the stem. 4. Features of the structure of the leaf of coniferous plants. 5.5. Morphology and metamorphosis of the leaf.
			Anatomical structure of the leaf -2	
13.	25.11.2024 30.11.2024	The final thematic block on the topic: "Vegetative organs of higher plants".	The final thematic block on the topic: "Vegetative organs of higher plants".	
			Microscopic signs of vegetative organs of plants	

14.	02.12.2024 07.12.2024	Generative organs of plants	Morphology of generative organs. Flower.	1. General characteristics of the Angiosperms department. Classification. The origin of angiosperms. 2. Distinctive features of representatives of the classes of
			Morphology of generative organs. Inflorescence.	Monocotyledonous and Dicotyledonous plants. 3. The flower, its main parts and their functions. The origin of the flower. 4. Flower formula and diagram. 5. Groups of inflorescences, their characteristics
15.	09.12.2024 14.12.2024		Morphology of generative organs. Fruits	1. Fruits, their definition. Morphology and functions of fruits. 2. The participation of various parts of the flower in the formation of fruits. 3. Principles of fruit classification. Modern classification of fruits based on the structure of the guinecea.
			Morphology of generative organs. Seed	4. Seed, the definition of a seed. Morphology and functions of the seed. 5. Distinctive features of seeds of monocotyledonous and dicotyledonous plants. 6. The physiology of the seed. Conditions of seed germination. 7. Methods of distribution of fruits and seeds.
16.	16.12.2024 21.12.2024	The final thematic block: "Morphology of generative organs. Plant ontogenesis"	The final thematic block: "Morphology of generative organs. Plant ontogenesis"	
			Morphology of vegetative and generative organs	