

AMENDMENTS AND CHANGES TO THE CURRICULUM IN THE EDUCATIONAL DISCIPLINE

«Pharmaceutical botany»

for the specialty 7-07 0912-01 «Pharmacy»

for 2026/2027 academic year

Amendments and changes	Basis/Reason
1. Changes have been introduced into the Thematic Plan and into the Educational Discipline Curricular Chart	Educational Plan for 2026/2027 academic year
2. Use in the educational process as the basic (main) literature: Pharmaceutical botany: textbook / T. M. Gontova, A. H. Serbin, S. M. Marchyshyn et al.; edited by T. M. Gontova. – Ternopil : TSMU, 2018. – 380 p.	Department meeting (protocol # 13 of 01.06. 2026)
3. The content of lessons 11-17 is supplemented by the use of artificial intelligence to teach the process of plant species identification. The Flora Incognita application is powered by artificial intelligence. High-precision deep learning algorithms and neural networks instantly analyze a plant (its leaves, flowers, or fruits) and compare it with an extensive database to accurately determine the species, distribution range, and conservation status of the plant.	Department meeting (protocol # 13 of 01.06. 2026)

The curriculum is revised and approved at the department meeting of the department pharmacy organizations with advanced training course and retraining (protocol № 13 of 01.06.2026)

Head of the department of Pharmacy organization
with advanced training course and retraining



O.V. Mushkina

APPROVED

Dean of the Medical Faculty for International Students



O.S. Ishtutin

ACADEMIC DISCIPLINE CURRICULAR CHART

Appendix № 1

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
2 semester							
	Lectures						
1.	Division Bryophyta, Lycopodiophyta, Equisetophyta, Polypodoiphyta.	1.5					
2.	Morphology of the vegetative organs. Root. Stem.	1.5					
3.	Morphology of the generative organs. Flower. Inflorescence.	1.5					
4.	Systematic review of subclasses Magnoliidae, Ranunculidae	1.5					
5.	Systematic review of subclass Dilleniidae	1.5					
6	Systematic review of subclass Rosidae			1.5			Test
7	Systematic review of subclass Lamniidae.	1.5					
8	Systematic review of class Liliopsida			1.5			Test
	Practical (laboratory or seminar) lessons						
1.	Introduction to pharmaceutical botany. Algae.	3		3	Skills in correct reading and writing in Latin the names of	Interview, test	

2.	Kingdom of Fungi. Division Lichenes.			3	taxons of the plant world and species names of plants	Interview, test	
		3			Skills in correct reading and writing in Latin the names of taxons of the plant world and species names of plants		
3.	Higher spore plants.			3	Skills in correct reading and writing in Latin the names of taxons of the plant world and species names of plants	Interview, test	
		3					
4	Division Pinophyta.			3	Skills in correct reading and writing in Latin the names of taxons of the plant world and species names of plants	Interview, test,	
		3					
5	The final lesson «Systematics of lower and higher archegoniates».			3	Skills in correct reading and writing in Latin the names of taxons of the plant world and species names of plants	Interview, test	Colloquium*
		3					
6.	Morphology of plants vegetative organs. Root. Stem.	3		3	Morphological description of a plant	Interview, practical work with a mark	
7.	Morphology of plants vegetative organs. Leaf.	3		3	Morphological description of a plant	Interview, practical work with a mark	
8.	Morphology of plants generative organs. Flower. Inflorescence.	3		3	Morphological description of a plant	Interview, practical work with a mark	
9.	Morphology of plants generative organs. Fruit. Seed.	3		6	Morphological description of a plant	Interview, practical work with a mark	

10	The final lesson «Morphology of plants».	3			Morphological description of a plant	Interview, practical work with a mark	Colloquium*
11	Systematic review of subclasses Magnoliidae, Ranunculidae.	3		3			
12	Systematic review of subclasses Caryophyllidae, Hamamelididae.	3		3			
13	Systematic review of subclass Dilleniidae.	3		3	Establishment of systematic position of plants	Interview, practical work with a mark	
14	Systematic review of subclass Rosidae.	3		3	Establishment of systematic position of plants	Interview, practical work with a mark	
15	Systematic review of subclass Lamniidae.	3		3	Establishment of systematic position of plants	Interview, practical work with a mark	
16	Systematic review of subclass Asteridae.	3		3			
17	Systematic review of class Liliopsida.	3		6			
18	The final lesson «Systematics of Flowering plants».				Skills in correct reading and writing in Latin the names of taxons of the plant world and species names of plants		Interview, credit*
3 semester		3					
Lectures							
1.	The structure of plant cell organelles.	1,5					
2.	Classification of plant tissues. Meristematic and parenchyma tissues.	1,5					
3	Secretory structures of plants. Mechanical tissues			1,5			Test

4	Conductive tissues. Fibrovascular bundles.	1,5					
5	Anatomy of herbaceous stem.	1,5					
6	Anatomy of woody plants stem.	1,5					
7	Anatomy of a root.	1,5					
8	Anatomy of leaf			1,5			Test
	Practical (laboratory or seminar) lessons						
1.	The structure of the plant cell, cell wall and membranes.			3	Preparation and analysis of temporary microparameters of vegetative organs of plants	Interview, visual laboratory	
2.	The structure of plant cell organelles.			3	Performing histochemical reactions and interpreting results to determine chemical components of plant cell and plant tissues	Interview, visual laboratory	
3.	Plant cell chemical substances.			3	Performing histochemical reactions and interpreting results to determine chemical components of plant cell and plant tissues	Interview, visual laboratory	
4.	The final lesson «Features of the structure, chemical substances and osmotic properties».	3					Colloquium*
5.	Classification of plant tissues. Meristema and parenchyma tissues.	3		3	Preparation and analysis of temporary microslide of plants vegetative organs	Interview, visual laboratory work, practical work with marking, examination	
6.	Covering tissues.	3		3	Preparation and analysis of temporary microslide of plants	Interview, visual laboratory work, practical work with	

7.	Secretory tissues.	3		2	vegetative organs	marking, examination	
8.	Mechanical tissues.	3		2			
9.	Conductive tissues. Fibrovascular bundles.			3	Preparation and analysis of temporary microslide of plants vegetative organs	Interview, visual work, practical work with marking, examination	
10	The final lesson: «Plant tissues».	3					Colloquium*
11	Anatomy of herbaceous plants stem.			3	Diagnosis of vegetative organs by microscopic features		
12	Anatomy of woody plants stem.	3		3	Diagnosis of vegetative organs by microscopic features		
13	Anatomy of rhizomes.	3		3	Diagnosis of vegetative organs by microscopic features		
14	Anatomy of root.	3		2	Diagnosis of vegetative organs by microscopic features		
15	Anatomy of leaf	3		2	Diagnosis of vegetative organs by microscopic features		
16	Microscopic diagnostic signs of vegetative organs of higher plants. Herba, leaf, flower	3		4	Diagnosis of vegetative organs by microscopic features Carrying out a competent botanical drawing detailing the most important	Assessment of the quality of botanical drawings, interview	

					diagnostic features of the vegetative organs of plants		
17	Microscopic diagnostic signs of vegetative organs of higher plants. Fruit, cortex, rhizoma, radix			3	Diagnosis of vegetative organs by microscopic features Carrying out a competent botanical drawing detailing the most important diagnostic features of the vegetative organs of plants	Assessment of the quality of botanical drawings, interview	
18	Educational research work of students «Study of anatomical structure of vegetative organs of plants». Microscopic diagnostic signs of vegetative organs of higher plants	3			Diagnosis of vegetative organs by microscopic features	Interview and colloquium with marks	
19	The final lesson «Anatomy of a plant».	3					Colloquium*
	Exam						Exam*