Criteria and procedure for evaluating learning outcomes on the educational component Pharmaceutical botany
specialtiy 226 Pharmacy and industrial pharmacy, specialization 226.01 Pharmacy of the Pharmacy educational program (4.10d), 2023/2024 academic years

Scheme of accrual and distribution of points for full-time higher education applicants

Module 14 Current testing and independent work														Sum
Content module 1				**Content module 2**				**Content module 3**						
T1	T2	T3	CM1 T1-T3	T4	T5	T6	CM2 T4-T6	T7	T8	T9	T10	T11	CM3 T7-T11	
-	5-8	1-2	9-15	0.5-1	2.5-4	3-5	9-15	0.5-1	5.5-9	9-15	3-5	3-5	9-15	60-100

Module 2 Current testing and independent work																Sum
Content module 4				**Content module 5**						**Content module 6**						
T12	T13	T14	CM4 T12-14	T15	T16	T17	T18	T19	CM5 T15-19	T20	T21	T22	T23	T24	CM6 T20-24	
3-5	0.5-1	2.5-4	12-20	0.5-1	3.5-4	2-4	1-2	1-2	10-17	3-5	3-5	3-5	0.5-1	0.5-1	14-23	60-100

The criteria for evaluating the knowledge and skills of students of higher education from the educational component "Pharmaceutical Botany" were developed in accordance with the "Regulations on the procedure for evaluating students' knowledge in the credit-modular organization of the educational process at the NUPh". The evaluation of the success of a higher education student in the educational component is a rating, presented on a one-point scale and defined according to the ECTS system and the traditional scale adopted in Ukraine.

Assessment of the **current academic activity** (conducted during each class) - test written control, control of theoretical knowledge, practical skills and abilities.

Scores in balls are reflected in the calendar and thematic plans for practical lessons.

Evaluation criteria	**Rating**
Theoretical training: the applicant of higher education: firmly mastered the material, deeply and comprehensively knows the content of the topic, section or the whole discipline, logically thinks and builds answers, impeccably performed written non-auditing tasks; gave exhaustive answers to the teacher's theoretical questions. *Practical training:* the applicant of higher education: freely uses acquired theoretical knowledge when analyzing practical material; flawlessly adheres to all the rules of conducting micro-and macroscopic analysis of raw material, is able to make temporary preparations, conduct microchemical reactions, dissect flowers or fruits; in full measure, by macro- and microscopic signs, determine the organs of plants and their diagnostic features; on an individual basis determines the plant and its belonging to a certain family, family; independently analyzed and summarized the information received, duly reflected the results of observations in the working journal	**«4.5-5» (90-100%)**
Theoretical training: Higher education: he has mastered the material, confidently owns the basic theoretical material, reasonably teaches him; without significant errors performed written non-auditing tasks, answered theoretical questions of the teacher with minor disadvantages. *Practical training:* the applicant of higher education has the necessary practical skills in micro- and macro-analysis, demonstrated the ability to make temporary	**«4» (74-89%)**

preparations, conduct microchemical reactions, dissect flowers or fruit, but when performing the work assumed minor mistakes; defines macro-and microscopic signs of plant organs and their diagnostic features in incomplete volume; on an individual basis, determines the plant and its belonging to a certain family, family, but allows certain inaccuracies and errors in Latin names; when identifying a family or a plant, it is not always convincingly arguing the answer; independently analyzed and summarized the information received, but suggested a number of minor mistakes, inaccuracies that are not of a fundamental nature; his conclusions lack depth and clarity; duly reflected the results of observations in the work journal.	
Theoretical training: the applicant of higher education basically mastered theoretical knowledge of the topic in the amount that is considered necessary and sufficient for the implementation of the practical part of the class, oriented in the primary sources and recommended literature, but unconvincingly answers, confuses the concept, additional questions cause uncertainty; fulfilled written non-auditable assignments with errors. *Practical training:* completed in full at least 60% of practical tasks; when performing micro-and macroscopic analysis with errors makes temporary preparations, conducts microchemical reactions, prepares flowers or fruits; incompletely determines the organs of plants and their diagnostic features according to macro- and microscopic signs; when identifying a family or a plant, can not convincingly argue the answer, identifies at least 60% of the volume of plants proposed by the teacher, makes mistakes in Latin names; independently analyzed and summarized the information received, but suggested a number of errors, inaccuracies, his conclusions lacked depth and clarity; inaccurately and not completely compiled the results of observations in the working journal.	**«3-3.5» (60-73%)**
Theoretical training: the applicant of higher education did not master theoretical knowledge on a certain topic in the amount that is considered necessary and sufficient for the implementation of the practical part of the class, does not know the basic concepts and definitions, is almost not oriented in the primary sources and recommended literature, does not correspond to the theoretical issues of the teacher, confused basic concepts; did not perform written hometasks, or executed with a lot of errors. *Practical training:* practical skills are not formed, gross errors are assumed in the manufacture of temporary preparations, microchemical reactions, preparation of flowers or fruits, can not determine the organs of plants and their diagnostic features by macro- and microscopic signs; when identifying a family or a plant can not convincingly argue the answer, defining less than 60% of the volume of plants proposed by the teacher, allows gross mistakes in Latin names. It is not able to independently analyze and generalize the information received, involves gross errors, inaccuracies in the conclusions; inaccurately and not completely compiled the results of observations in the working journal.	**«0-2.5» (less 60%)**

Criteria for evaluating current educational activities of full-time higher education applicants

№ lesson	**Topic of practical lesson**	**Types of assessment (% of the number of points for the type of activity)**
1	Fundamentals of botanical microtechnology. Investigation of plant cell structures that have a diagnostic value in a microscopic analysis of plant raw material: plastids, crystalline inclusions, storage products.	-

2	Investigation of plant cell structures having a diagnostic value in a microscopic analysis of plant material: cell wall. Individual work Learning control of CM 1 Test control on the topic "Plant cell" • Written control "Plant cell" • Computer control of tests for the license exam "Krok 1" on the topic "Plant cell"	Carrying out tasks of extracurricular independent work (10%) Completion of classroom work tasks (40%) Oral interview (20%) Written control (30%) 100% Written control "Plant cell" (50%) Testing according to the test base of the licensing exam Krok 1 (50%)
3	Plant tissues and their classification. The structure and location of meristematic, covering, secretory and basic tissues.	Carrying out tasks of extracurricular independent work (10%) Completion of classroom work tasks (40%) Oral interview (20%) Written control (30%)
4	Structure, function and location of mechanical and conductive tissues. Conductive bundles. Learning control of CM 2 Test control on the topic "Plant tissues" • Written control "Plant tissues" • Computer control of tests for the license exam "Krok 1" on the topic "Plant tissues"	Carrying out tasks of extracurricular independent work (10%) Completion of classroom work tasks (40%) Oral interview (20%) Written control (30%) Written control "Plant tissues" (50%) Testing according to the test base of the licensing exam Krok 1 (50%)
5	Anatomy of the root. Anatomy of the stem and rhizome of grassy monocots.	Carrying out tasks of extracurricular independent work (10%) Completion of classroom work tasks (40%) Oral interview (20%) Written control (30%)
6	Anatomy of the stem and rhizomes of grassy monocots. Anatomy of the arboreal plants' stem.	Carrying out tasks of extracurricular independent work (10%) Completion of classroom work tasks (40%) Oral interview (20%) Written control (30%)
7	Anatomy of the leaf.	Carrying out tasks of extracurricular independent work (10%) Completion of classroom work tasks (40%) Oral interview (20%) Written control (30%)
8	Independent educational-research work «Microscopic analysis of the axial plant organ»	100%
9	Morphology of the vegetative organs (root, shoot, leaf and its parts).	Carrying out tasks of extracurricular independent work (10%) Completion of classroom work tasks (40%) Oral interview (20%) Written control (30%)
10	Learning control of CM 3 Test control on the topic "Morphology and anatomy of plant vegetative organs" • Written control "Morphology and anatomy of plant vegetative organs" • Computer control of tests for the license exam "Krok 1" on the topic "Morphology and anatomy of plant vegetative organs"	Written control "Morphology and anatomy of plant vegetative organs" (50%) Testing according to the test base of the licensing exam Krok 1 (50%)
11	Morphological structure of the inflorescence and flower.	Carrying out tasks of extracurricular independent work (10%)

		Completion of classroom work tasks (40%) Oral interview (20%) Written control (30%)
12	Morphological structure of the fruits and multiple fruits. Independent educational-research work Learning control of CM 4 Test control on the topic "Morphology of the generative organs" • Written control "Morphology of the generative organs" • Computer control of tests for the license exam "Krok 1" on the topic "Morphology of the generative organs"	Carrying out tasks of extracurricular independent work (20%) Completion of classroom work tasks (50%) Oral interview (30%) 100% Written control "Morphology of the generative organs" (50%) Testing according to the test base of the licensing exam Krok 1 (50%)
13	The Brassicaceae (Mustard) Family; Fabaceae (Legume or Bean) Family, The Polygonaceae (Knotweed) Family	Carrying out tasks of extracurricular independent work (10%) Completion of classroom work tasks (40%) Oral interview (20%) Written control (30%)
14	The Rosaceae (Rose) Family, the Ericaceae (Heath) Family, the Poaceae (Grass) Family, the Alliaceae (Onion) Family	Carrying out tasks of extracurricular independent work (10%) Completion of classroom work tasks (40%) Oral interview (20%) Written control (30%)
15	The Apiaceae (Carrot) Family Learning control of CM 5 Test control on the topic "Plant systematics part 1" • Written control "Plant systematics part 1" • Computer control of tests for the license exam "Krok 1" on the topic "Plant systematics part 1"	Carrying out tasks of extracurricular independent work (10%) Completion of classroom work tasks (40%) Oral interview (20%) Written control (30%) Written control "Plant systematics part 1" (50%) Testing according to the test base of the licensing exam Krok 1 (50%)
16	The Solanaceae (Potato) Family, the Lamiaceae (Mint) Family. Gymnosperm plants	Carrying out tasks of extracurricular independent work (10%) Completion of classroom work tasks (40%) Oral interview (20%) Written control (30%)
17	The Asteraceae (Sunflower) Family	Carrying out tasks of extracurricular independent work (10%) Completion of classroom work tasks (40%) Oral interview (20%) Written control (30%)
18	Medicinal plants of the different families	Carrying out tasks of extracurricular independent work (10%) Completion of classroom work tasks (40%) Oral interview (20%) Written control (30%)
19	Algae, mushrooms and lichens - diagnostic features, classification. Medicinal species of blue-green algae (spirogir), brown algae (laminaria, fucus), mushrooms (mushroom, chaga), lichens (citraria)	Carrying out tasks of extracurricular independent work (10%) Completion of classroom work tasks (40%) Oral interview (20%) Written control (30%)
	Learning control of CM 6 Test control on the topic "Plant systematics part 2" • Written control "Plant systematics part 2"	Written control "Plant systematics part 2" (50%) Testing according to the test base of the licensing exam Krok 1 (50%)

	• Computer control of tests for the license exam "Krok 1" on the topic "Plant systematics part 2"	

Criteria for evaluating independent educational and research work for full-time higher education applicants

Recommended criteria for evaluating independent educational and research work	Grade
The research object is identified, its diagram is drawn and a full description of the research object is provided in accordance with the proposed points (90-100%)	**5**
The researched object was identified, its scheme was drawn and an incomplete description of the researched object was provided in accordance with the proposed points (74-89%)	**4**
The researched object was identified, its scheme was not drawn and an incomplete description of the researched object was provided in accordance with the proposed points (60-73%)	**3**

Evaluation criteria for content modules 1-6 on Pharmaceutical botany for full-time higher education applicants

№ question	Recommended evaluation criteria for the theoretical part	Grade
1-18	The applicant for higher education gave the correct answer to 16-18 test tasks of the ticket (90-100%)	**5**
	The applicant for higher education gave the correct answer to 14-15 test tasks of the ticket (74-89%)	**4**
	The applicant for higher education gave the correct answer to 11-13 test tasks of the ticket 11-13 (60-73%)	**3**
	The applicant of higher education gave the correct answer to 9 or fewer test tasks of the ticket (less than 60%)	**0-2**

№ question	Recommended evaluation criteria for the practical part	Grade
19, 20	The names of the objects are correctly given and a full description of the proposed points is given	**5**
	The names of not all objects are correctly provided and/or a partial description of the proposed points is given	**4**
	The names of the objects are incorrectly provided and/or an incomplete description of the proposed points is given	**3**

Assessment criteria for the semester exam on Pharmaceutical botany for full-time higher education applicants

№ task	Recommended evaluation criteria for the theoretical part	Scores	Grade
1	27-30 correct answers were received	54-60	5
	22-26 correct answers were received	44-52	4
	18-21 correct answers were received	36-42	3
	Less than 17 correct answers were received	0-34	0-2
Recommended evaluation criteria for the practical part			
2	A correct description of the proposed object was provided in 5 points	20	5
	A correct description of the proposed object was provided in 4 points	16	4
	A correct description of the proposed object was provided in 3 points	12	3
	A correct description of the proposed object was provided in 2 and less points	0-10	0-2
3	The Ukrainian and Latin names of the species of the medicinal plant and its family are given; the correct characteristics for 4 points were provided	20	5
	The Ukrainian and Latin names of the species of the medicinal plant and its family are given with minor errors; correct characteristics on 3 points were provided	16	4
	Ukrainian and/or Latin names of the species of the medicinal plant and its family are given; correct characteristics for 2 points were provided	12	3

	The Ukrainian and/or Latin names of the species of the medicinal plant and its family are not given; correct characteristics on 3 points were provided		
	The Ukrainian and/or Latin names of the species of the medicinal plant and its family are not given; correct characteristics on 2 and less points were provided	0-10	0-2
	Total	**100**	

Forms of current and semester control of study success

Current control of theoretical and practical knowledge in the form of oral verification of the performance of tasks of extra-auditory independent work; selective oral survey; written control of assimilation of the material of the topic of each lesson, individual parts of the educational component, content modules; computer control of Licensing Exam tests on content module topics; oral defense of educational and research work, oral submission of the herbarium minimum.

Control of content modules - is carried out in the last classes of studying the topics of content modules. The form of knowledge diagnosis of higher education applicants is written control and testing based on the test base of the licensing exam Krok-1 (botany) in Ukrainian and English.

When studying the educational component "Pharmaceutical botany", higher education applicants take a semester exam. The Pharmaceutical botany exam is conducted in written form during the exam session, according to the schedule.

The control form is a semester credit and a semester exam.