УТВЕРЖДАЮ
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CALENDAR AND THEMATIC PLAN
of laboratory and practical classes on pharmacognosy
for 4th year students of the Pharmacy Faculty
for 7th semester 2024-2025 academic year

№	Date	The name of the thematic blocks of the discipline (course)	Topics of classes included in the thematic block	Basic questions for preparation
1.	02.09.24.-07.09.24.	Flavonoids.	Analysis of medicinal plant raw materials containing flavonoids. Part 1 Part 2	1.Concept of flavonoids. Medical and biological importance of flavonoids. 2. Classification of flavonoids. Basic structural formulas. 3. Medicinal plants and raw materials containing flavonoids: - Motherwort species; - hawthorn species; - Sophora japonica; 4. Formulas: flavan, catechin, leucocyanidin, anthocyanidin, flavanonol, flavanone, flavone, flavonol, chalcone, dihydrochalcone, auron, isoflavone, quercetin, rutin, hyperoside, hyperoside, luteolin, apigenin, kaempferol, naringenin.
2.	09.09.24.-14.09.24		Analysis of medicinal plant raw materials containing flavonoids. Part 3 Part 4	1. Distribution of flavonoids in the plant world. 2. medicinal plants and raw materials containing flavonoids: - immortelle sandy; - chokeberry, - species of violets. 3. Formulas: cyanidin, flavone, flavonol, chalcone, dihydrochalcone, quercetin, rutin, hyperoside, hyperoside, apigenin, luteolin, vitexin, isosalipurposide, kaempferol, naringenin.
3.	16.09.24.-21.09.24		Analysis of medicinal plant raw materials containing flavonoids. Part 5 Part 6	1.Morphological and anatomical characteristics of Polygonaceae family. 2. Representatives of the buckwheat family containing flavonoids: - Pepper highlander; - kidneywort;

				- highlander. 3.Medicinal plants and raw materials containing flavonoids: - Bidens tripartita; - species of Hypericum. Formulas: rutin, hyperoside, hypericin, quercetin, avicularin, kaempferol, sulphuretin.
4.	24.09.24.-28.09.24		Phytochemical analysis of raw materials containing flavonoids. Part 1 Part 2	1.Chemical classification of groups of phenolic compounds using basic structural formulae. 2.Physico-chemical properties of flavonoids. 3.Methods of isolation from plant raw materials. 4.Qualitative analysis and quantitative analysis of raw materials containing flavonoids. 5.Formulas: flavan, catechin, leucocyanidin, anthocyanidin, flavanonol, flavanone, flavone, flavonol, chalcone, dihydrochalcone, auron, isoflavone, quercetin, rutin, hyperoside, luteolin, apigenin, kaempferol, naringenin, avicularin, sulfuretin.
5.	30.09.24.-05.10.24. .	**Final Thematic Unit: "Flavonoids".**	**Control Testing.**	
			Final lesson on the topic: "Flavonoids".	
6.	07.10.24.-12.10.24	Coumarins.	Analysis of medicinal plant raw materials containing coumarins. Part 1 Part 2	1.Coumarins. Concept. Classification. 2.Distribution, localisation of coumarins. 3.Importance of coumarins in plant life and in medicine. 4.Medicinal plants and raw materials containing coumarins: - Donna species; - big ammi; - parsnip; - figs.
7.	14.10.24.-19.10.24.	Chromones and lignans. Tannins.	Analysis of medicinal plant materials containing chromones and lignans. Part 1 Part 2	1. The characteristics of chromones. 2.Medicinal plants and raw materials containing chromones: - ammi dentifrice, - Dill. 3.Lignans. Concept. Classification. 4. Distribution in the plant world. Localisation. 5. Medicinal plants and raw materials containing lignans: - Eleutherococcus senticosus; - Chinese lemon
8.	21.10.24.-26.10.24		Analysis of medicinal plant raw materials containing tannins. Part 1 Part 2	1.Tannins. Classification. 2.Physico-chemical properties of tannins. 3.Distribution in the plant world. Localisation. 4.Medicinal plants and raw materials containing tannins:

				- Petiole oak; - tannery scumpia, - sumac tannic. 5.Formulas: catechin, pyrogallol, pyrocatechin, phloroglucin, gallic and ellagic acids.
9.	28.10.24.-02.11.24.		Analysis of medicinal plant raw materials containing tannins. Part 3 Part 4	1. Medicinal plants and raw materials containing tannins: - Sanguisorba officinalis, - Bistirta major, - Potentilla erecta. 2.Formulas: catechin, pyrogallol, pyrocatechin, phloroglucin, gallic and ellagic acids.
10.	04.11.24.-09.11.24.	Phytochemical analysis of raw materials containing coumarins, chromones, tannins, lignans.	Phytochemical analysis of raw materials containing coumarins, chromones, tannins, lignans. Part 1 Part 2	1.Chemical classification of coumarins, chromones, tannins, lignans using basic structural formulae. 2.Physico-chemical properties of coumarins, chromones, tannins, lignans. 3.Methods of isolation from plant raw materials. 4.Qualitative analysis of raw materials. 5.Methods of quantitative analysis of raw materials containing coumarins, chromones, tannins, lignans. 6.Formulas: coumarin, isocoumarin, psoralen, angelicin, dihydrocoumarin, bergapten, isopimpinellin, xanthotoxin, chromone, kellin, visnagin, catechin, pyrogallol, pyrocatechin, floroglucin, gallic and ellagic acids.
11.	11.11.24.-16.11.24.	**Final Thematic Unit: «Coumarins. Chromones and lignans. Tannins.»**	**Control testing.**	
			Final lesson on the topic: «Coumarins. Chromones and lignans. Tannins.»	
12.	18.11.24.-24.11.24	Analysis of an unidentified crushed medicinal raw material. Resource science.	Analysis of crushed medicinal raw materials (above-ground organs) Part 1 Part 2	1. To define the various morphological groups of raw materials (leaves, herbs, seeds, bark, flowers) from the point of view of pharmacognosy. 2. Methods of pharmacognostic analysis to confirm the authenticity of herbs, leaves, flowers, bark, seeds. 3. Macro-diagnostic features of morphological groups of raw materials (leaves, herbs, seeds, bark, flowers). 4. Anatomo-diagnostic signs of morphological groups of raw materials (leaves, herbs, seeds, bark, flowers).
13.	25.11.24.-30.11.24		Analysis of crushed medicinal raw materials (underground organs) Part 3 Part 4	1. Define the different morphological groups of raw materials (roots, rhizomes, rhizomes with roots, rhizomes and roots, tubers, bulbs) from the point of view of pharmacognosy. 2. Methods of pharmacognostic analysis to confirm the authenticity of roots, rhizomes, tubers, bulbs.

				3. Macro-diagnostic signs of morphological groups of raw materials (roots, rhizomes, rhizomes with roots, rhizomes and roots, tubers, bulbs). 4. anatomo-diagnostic signs of morphological groups of raw materials (roots, rhizomes, rhizomes with roots, rhizomes and roots, tubers, bulbs).
14.	02.12.24.-07.12.24.	Resource studies.	Resource studies. The main aims and purposes of resource science. Part 1 Part 2	1. medicinal resource science. Concepts. Objectives. 2. Structure of resource study. 3. Methods of determining the reserves of medicinal plants. Criteria for choosing the methodology.
15.	09.12.24.-14.12.24		Evaluation of the magnitude of stocks of medicinal raw materials on specific thickets and by the method of key sites. Part 3 Part 4	1. Yield. Methods of determining yield. Problem solving. 2. The concept of biological and operational stock of raw materials. 3. The volume of possible annual harvesting of raw materials.
16.	16.12.24.-21.12.24.	**Final Thematic Unit: «Resource studies. The main aims and purposes of resource science.»**	**Control testing.**	
			Final lesson on the topic: «Resource studies. The main aims and purposes of resource science»	
17.	24.12.24.-28.12.24.	**Final lesson**		