

The catalog of elective disciplines

1. The department of Pharmacognosy

2. Level of training (magistracy)

3. Educational program: 7M10142 «Pharmacy»

4. Course: 1 (scientifically-pedagogical direction)

5. Name of elective discipline: «Features of the phytochemical analysis of medicinal raw materials of plant and animal origin»

6. Amount of credits: 3

7. Purposes:

Acquaintance of undergraduates with topical issues of a pharmakognoziya, the organization of preparations of medicinal plant raw materials, the chemical composition and classification of herbs, bases of rational environmental management, methods of procuring process of medicinal plant raw materials and its standardization and also with the main directions of scientific research in the field of studying of herbs.

8.Tasks: - ability to define humidity, ash-content, characteristic numerical indicators of medicinal plant raw materials (in fats — acid number, iodic number, etc.);

- studying high-quality and quantitative definition of active ingredients of medicinal raw materials of plant and animal origin;

- carrying out phytochemical analysis of medicinal raw materials of plant and animal origin;

- to create the skills necessary for implementation of professional activity of the undergraduate;

- to give a general idea to undergraduates about the medicines applied at standardization in phytotherapy and entered in the Register of the Republic of Kazakhstan

- development and acquaintance by practical, communicative and legal skills of students with basic provisions about medicinal plant raw materials and herbs and ready of them, the dosage forms applied at standardization in the Republic of Kazakhstan.

- formation of complete idea of medicines from MPRM applied at standardization in the Republic of Kazakhstan.

- legal acquaintance of students with problems of the herbs applied at standardization in the form of ready dosage forms at traditional medicine, disclosure of scientific approaches in their decision.

9. Justification of the choice of discipline:

"Features of the phytochemical analysis of medicinal raw materials of plant and animal origin" – one of pharmaceutical sciences studying herbs, medicinal plant raw materials and some products of primary processing of plant and animal origin. It is considered features of the phytochemical analysis of medicinal raw materials of plant and animal origin a special subject for studying of a pharmakognoziya as the main subject. Pharmakognoziya (from Greek pharmakon – medicine, poison and gnosis - knowledge) – the science which is comprehensively studying herbs, medicinal raw materials plant is more rare than animal origin.

10. Results of training (competence):

Knowledge (cognitive sphere)	Skills (psychomotor sphere)	Personal and professional competences (relations)
<p>- "Features of the phytochemical analysis of medicinal raw materials of plant and animal origin" as science and as subject matter and main stages of development.</p> <p>- a general meaning of herbs and medicinal plant raw materials, as source of biologically active</p>	<p>- ability to define humidity, ash-content, characteristic numerical indicators of medicinal plant raw materials (in fats — acid number, iodic number, etc.);</p>	<p>- carrying out phytochemical analysis of medicinal raw materials of plant and animal origin;</p> <p>- to define humidity, ash-content, characteristic numerical indicators of</p>

<p>connections applied at standardization in modern phytotherapy;</p> <ul style="list-style-type: none"> - to study the general nomenclature of herbs, medicinal plant raw materials and the phytomedicines in a ready form used at standardization and quality control in testing laboratories of the Republic of Kazakhstan; - to study, examine and master necessary indicators of quality, various ready dosage forms applied at standardization (tinctures, tablets, extracts, ointments, etc.), containing medicinal plant raw materials; - Acquaintance with safety measures of work in chemical laboratory with medicinal plant raw materials and herbs, applied in phytotherapy; - Defines distinctive features of standardization and quality control of the crushed MPRM in comparison with other areas of standardization and quality control; - Explains the parameters used in standardization and quality control of the crushed MPRM; - Explains essence of quality control of the crushed MPRM, its purpose and tasks as sciences; - to distinguish herbs and medicinal plant raw materials, applied at standardization in phytotherapy. 	<ul style="list-style-type: none"> - Knows zhiropodobny substances. Wax: beeswax, spermatst also lanolin; - studying high-quality and quantitative definition of active ingredients of medicinal raw materials of plant and animal origin; - is able systematizes knowledge of a subject and problems of standardization and quality control of the crushed medicinal plant raw materials of the packed-up products; - Owns metodolgiy standardization and quality control of the crushed MPRM; - Is able defines distinctive features of standardization and quality control of the crushed MPRM in comparison with other areas of standardization and quality control; - Explains the parameters used in standardization and quality control of the crushed MPRM; - Explains essence of quality control of the crushed MPRM, its purpose and tasks as sciences; - Is able to compare evaluation stages of standardization and quality control of MPRM; - Is able to characterize quality control investigation phases; - knows ways of use and application in medicine of medicinal plant raw materials 	<p>medicinal plant raw materials (in fats — acid number, iodic number, etc.);</p> <ul style="list-style-type: none"> - to carry out analyses on zhiropodobny substances. Wax: beeswax, spermatst also lanolin; - to carry out high-quality and quantitative definition of active ingredients of medicinal raw materials of plant and animal origin; - Ability to apply standard and technical documentation, knowledge in the field of standard and legal bases of protection of intellectual property and a transfer of technologies, knowledge in the field of ISO <p>Free possession of professional knowledge in the field of standardization and quality control;</p> <ul style="list-style-type: none"> - To Vladeet to provide stability of indicators~ productions and qualities of the products which are turned out; - To carry out the touch assessment of finished goods; - To carry out the analysis and to generalize the received results for use in production and technological activity; - to predict emergence of possible problems, crisis or unusual situations, to find possibilities of their monitoring, permission or prevention; - To carry out environmental control
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11. Prerequisites: bachelor degree

12. Post-details: doctorate

13.Literature

The main:

1. Рахимов, Қ. Д. Фитофармакология. Фармакология - Тезаурус. [Мәтін] : оқу құралы = Фитофармакология. Фармакология -Тезаурус : учеб. пособие / Қ. Д. Рахимов. - 2-бас. толықт., өңд.. - Алматы : ЖШС "Жания-Полиграф", 2015. - 528 с.
2. Токсанбаева, Ж. С. Лекарственное ресурсоведение [Текст] : учеб. пособие / Ж. С. Токсанбаева, А. К. Патсаев, С. К. Сейдалиева ; М-во здравоохранения РК; ЮКГФА. - ; Утв. и разрешено в печать Методич. Совета ЮКГФА. - Шымкент : "RISO", 2014. - 104 с.
3. Рахимов, Қ. Д. Фитохимия, фитофармакология, фитотерапия [Мәтін] : оқу құралы / ҚР Ұлттық ғыл. акад.; "Фитохимия" халықаралық ғыл.-өндірістік холдингі.; Фармакология ин-ты. - Алматы ; Караганда : ЖШС "Жания-Полиграф", 2015. - 538 бет
4. Қазақстан Республикасының Мемлекеттік фармакопеясы. Т. 1. – Алматы: «Жібек жолы» баспа үйі, 2015. – 720 бет
5. Қазақстан Республикасының Мемлекеттік фармакопеясы. Т. 2. – Алматы: «Жібек жолы» баспа үйі, 2009. – 792 бет.
6. Қазақстан Республикасының Мемлекеттік фармакопеясы. Т. 3. – Алматы: «Жібек жолы» баспа үйі, 2014. – 864 бет
7. Государственная Фармакопея Республики Казахстан. Т.1. – Алматы: Издательский дом «Жибек жолы», 2015. – 720 с. –
8. Государственная Фармакопея Республики Казахстан. Т.2. – Алматы: Издательский дом «Жибек жолы», 2009 – 804 с. –
9. Государственная Фармакопея Республики Казахстан. Т.3. – Алматы: Издательский дом «Жибек жолы», 2014. – 872 с. –
10. Фармакопея США: USP 29. Национальный формуляр: NF 24. В 2 т. Т. 1 [Текст] : сб. стандартов: пер. с англ. - ; С разрешения Фармакопейной Конвенции США. - М. : ГЭОТАР - Медиа, 2009. - 1720 +эл. опт. диск (CD-ROM)
11. Фармакопея США: USP 29. Национальный формуляр NF 24. В 2 т. Т. 2 [Текст] : сб. стандартов: пер. с англ. - ; С разрешения Фармакопейной Конвенции США. - М. : ГЭОТАР - Медиа, 2009. - 1800 +эл. опт. диск (CD-ROM)
12. Фармакопея США. Национальный формуляр: избранные обновления и все новые материалы с USP 29 - NF 24 по USP 33 - NF28 включительно: пер. с англ. - М.: ГЭОТАР - Медиа, 2012.-888с

Additional:

1. Лекарственные растения, растительное сырье и некоторые продукты переработки сырья животного происхождения. Ч. 1. Лекарственные растения и лекарственное растительное сырье содержащие углеводы, жиры и жироподобные вещества, витамины, терпеноиды [Текст] : учеб.-методическое пособие по фармакогнозии / Д. М. Джангозина [др.]. - 2-е изд., доп. - Алматы : Эверо, 2014. - 208 с.
2. Лекарственные растения, лекарственное растительное сырье и некоторые продукты переработки сырья животного происхождения. Ч. 2. Лекарственные растения и лекарственное растительное сырье, содержащие сердечные гликозиды, сапонины, алколоиды [Текст] : учеб. - методическое пособие по фармакогнозии / Д. М. Джангозина [и др.]. - 2-е изд., доп. - Алматы : Эверо, 2014. - 194 с.
3. Лекарственные растения, лекарственное растительное сырье и некоторые продукты переработки сырья животного происхождения. Часть 3. Лекарственные растения и лекарственное растительное сырье, содержащие фенольные соединения и их гликозиды, кумарины, хромоны, лигнаны, антраценпроизводные, флавоноиды, дубильные вещества, биологически активные вещества малоизученного состава и лекарственные сырье животного происхождения [Текст] : учеб.-методическое пособие по фармакогнозии / Д. М. Джангозина [и др.]. - 2-е изд., доп. - Алматы : Эверо, 2014. - 220 с.
4. Горянов, В. И. Лекарственные растения Южно-Казахстанской области [Текст] : справочник / В. И. Горянов. - Шымкент : Алем, 2017. - 152 с

Electronic resources:

1. Медициналық-биологиялық деректерді статистикалық талдауда excel және spss statistics бағдарламаларын қолдану.
2. Чудиновских В.Р., Каипова А.Ш., Алтаева А.У., Абдикадыр Ж.Н. , 2016 ЦБ Акнурпресс <https://aknurpress.kz/reader/web/1341>
3. Абиев С.А. Фитопатология: оку құралы/ I-ші бөлім. С.А. Абиев.- Алматы: Эверо, 2020.– 204 б https://www.elib.kz/ru/search/read_book/642/
4. Абиев С. Фитопатология. II-ші бөлім. Алматы: Эверо. 2020. – 228 б https://www.elib.kz/ru/search/read_book/643
5. Өсімдіктердің алуан түрлілігі және оларды тиімді пайдалану
6. Айдарбаева Д.Қ., Шолпанқұлова Г.А. , 2019 <https://www.aknurpress.kz/reader/web/2241>
7. Контроль качества и стандартизация лекарственных средств [Электронный ресурс] : методическое пособие / под ред. Раменской Г. В., Ордабаевой С. К. - ; ГБОУ ВПО "Первый МГМУ им И. М. Сеченова". РГП на ПХВ "ЮКГФА". - Электрон. текстовые дан. (4.91Мб). - Шымкент : ЮКГФА, 2015. -эл. опт. диск (CD-ROM).
8. Джангозина Д.М., Лосева И.В., Ивлева Л.П., Дербуш С.Н. Лекарственные растения, лекарственное растительное сырье и некоторые продукты переработки сырья животного происхождения. Учебное пособие по фармакогнозии. Издание второе, доп. Часть III: Лекарственные растения и лекарственное растительное сырье, содержащие фенольные соединения и их гликозиды; кумарины, хромоны, лигнаны, антраценпроиз-водные, флавоноиды, дубильные вещества, биологически активные вещества малоизученного состава и лекарственное сырье животного происхождения. –Алматы: издательство «Эверо», 2020. –https://www.elib.kz/ru/search/read_book/748/

1. The department of Pharmacognosy

2. Level of training (magistracy)

3. Educational program: 7M10142 «Pharmacy»

4. Course: 1 (scientifically-pedagogical direction)

5. Name of elective discipline: «Standardization of medicinal plant raw materials and phytopreparations»

6. Amount of credits: 4

7. Purposes:

- Formation of theoretical knowledge (cognitive component)
- Mastering practical skills in conducting microscopy of medicinal plant raw materials and conducting a complete analysis of finished medicines used in phytotherapy
- Instilling communication skills to students on the professional presentation of the external description of LR and LRS, reasoned statement, defending their own point of view, the formation of logical thinking, the ability to participate in discussions, etc.
- Mastering legal competence by familiarizing regulatory documentation regulating the quality, effectiveness and safety of LR and LRS (GF RK, etc.)
- Motivated training of undergraduates for continuous improvement and development of abilities for independent and creative development of materials on medicinal plant raw materials

8. Tasks:

- to give a general idea to undergraduates about medicines used in standardization in phytotherapy and listed in the Register of the Republic of Kazakhstan
- mastering and familiarization with practical, communicative and legal skills of students with the basic provisions on medicinal plant raw materials and medicinal plants and prepared from them, dosage forms used in standardization in the Republic of Kazakhstan.

- formation of a holistic view of medicines from LRS used in standardization in the Republic of Kazakhstan.
- legal familiarization of undergraduates with the problems of medicinal plants used in standardization in the form of ready-made dosage forms in traditional medicine, disclosure of scientific approaches to their solution.
- familiarization with modern promising areas of application of medicinal plants and medicinal plant and factory-prepared ready-made dosage forms (tinctures, extracts, tablets, etc.) used in modern phytotherapy.
- to form the ability to independently understand medicinal plants and medicinal plant raw materials and finished medicines used in standardization in phytotherapy.

9. Justification of the choice of discipline:

Ensuring the proper quality of medicinal plant raw materials largely depends on the correct organization of control, its effectiveness and efficiency, as well as on the level of requirements laid down in regulatory documents (GF, AND, VAND) and the methods of analysis used. The study of the system of quality standards of medicinal plant raw materials, their products, testing methods, etc., established in a nationwide manner and mandatory for producers and consumers is currently a very urgent problem in the Republic of Kazakhstan.

10. Results of training (competence):

Knowledge (cognitive sphere)	Skills (psychomotor sphere)	Personal and professional competences (relations)
<p>-general concept of work safety in chemical testing laboratories, standardization, standards, laws used in standardization, medicinal plants, medicinal plant raw materials, the concept of biologically active substances, familiarity with the State Budget of the Republic of Kazakhstan, the Register of the Republic of Kazakhstan;</p> <p>-the general importance of medicinal plants and medicinal plant raw materials as a source of biologically active compounds used in standardization in modern phytotherapy;</p> <p>- to get acquainted with the general nomenclature of medicinal plants, medicinal plant raw materials and phytopreparations in finished form used in standardization and quality control in testing laboratories of the Republic of Kazakhstan;</p> <p>-to study, familiarize and master the necessary quality indicators used in the standardization of various ready-made dosage forms (tinctures, tablets, extracts,</p>	<p>- be able to correctly give a general description of medicinal preparations from medicinal plants and medicinal plant raw materials according to a common external feature, the main features characteristic of the LRS family, the main chemical composition and use in phytotherapy;</p> <p>- search and selection of material for the disclosure of the topic standardization of medicinal plants used in herbal medicine;</p> <p>-be able to use the necessary scientific, educational and professional literature for a future specialist, suitable for working with medicinal plants used in phytotherapy;</p> <p>- Be able to use regulatory documents (the Law on Medicines, the State Budget of the Republic of Kazakhstan, the Register of the Republic of Kazakhstan,</p>	<p>- To carry out work with safety procedures of work in a chemical laboratory with medicinal plant raw materials and medicinal plants used in phytotherapy;</p> <p>- to carry out standardization and quality control of medicinal plant raw materials;</p> <p>- State registration and re-registration of some ready-made medicines: "Hawthorn tincture", "Motherwort Tincture", "Lily of the Valley Tincture" used in herbal medicine. General study of medicinal plant raw materials used in settings. Study of the general article on the GF of the Republic of Kazakhstan;</p> <p>- State registration and re-registration of some medicines: "Salvin – solution for external use", "Chlorophyllipt -alcohol</p>

<p>ointments, etc.) containing medicinal plant raw materials</p> <ul style="list-style-type: none"> - recognize medicinal plants and medicinal plant raw materials used in standardization; - to carry out quality control according to the required indicators and analysis of medicinal products from medicinal plants and medicinal plant raw materials used in standardization; 	<p>standardization orders, standardization regulations, codes, etc.) on standardization of finished dosage forms used in herbal medicine;</p> <ul style="list-style-type: none"> - Be able to state registration and re-registration of medicinal raw materials, plant and animal origin <p>The concept of registration, re-registration and certification of pharmaceutical products from raw materials of animal and vegetable origin in the Republic of Kazakhstan.</p>	<p>1% solution", "Infusion, tincture of birch buds", "Infusion of melissa herb" are derivatives of essential oils used in phytotherapy. Study of quality indicators for finished dosage forms.</p>
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11. Prerequisites: bachelor degree

12. Post-details: doctorate

13. Literature

The main:

1. Рахимов, Қ. Д. Фитофармакология. Фармакология - Тезаурус. [Мәтін] : оқу құралы = Фитофармакология. Фармакология -Тезаурус : учеб. пособие / Қ. Д. Рахимов ; ҚР ұлттық ғылым акад. Фармакология ин-ты; ҚР денсаулық сақтау және әлеуметтік даму Министрлігі; Қазақ мед. үздіксіз білім беру ун-ті АҚ. - 2-бас. толықт., өңд. және түзет. ; Алматы мемл. дәрігерлер білімін жетіл. ин-ты ғыл. кеңесі бас. ұсынған. - Алматы : ЖШС "Жания-Полиграф", 2015. - 528 с.
2. Тоқсанбаева, Ж. С. Дәрілік ресурстану: оқу құралы / Ж. С. Тоқсанбаева, Ә. Қ. Патсаев, Т. С. Серікбаева. - Алматы : Эверо, 2015. - 112 бет с.
3. Тоқсанбаева, Ж. С. Лекарственное ресурсоведение: учеб. пособие / Ж. С. Тоқсанбаева, А. К. Патсаев, С. К. Сейдалиева ; М-во здравоохранения РК; ЮКГФА. - Шымкент : "RISO", 2014. - 104 с.
4. Қазақстан Республикасының Мемлекеттік фармакопеясы. Т. 1. – Алматы: «Жібек жолы» баспа үйі, 2015. – 720 бет
5. Қазақстан Республикасының Мемлекеттік фармакопеясы. Т. 2. – Алматы: «Жібек жолы» баспа үйі, 2009. – 792 бет.
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7. Государственная Фармакопея Республики Казахстан. Т.1. – Алматы: Издательский дом «Жибек жолы», 2015. – 720 с. –
8. Государственная Фармакопея Республики Казахстан. Т.2. – Алматы: Издательский дом «Жибек жолы», 2009 – 804 с. –
9. Государственная Фармакопея Республики Казахстан. Т.3. – Алматы: Издательский дом «Жибек жолы», 2014. – 872 с. –

Additional:

1. Фармакопея США. Национальный формуляр: избранные обновления и все новые материалы с USP 29 - NF 24 по USP 33 - NF28 включительно: пер. с англ. - М. : ГЭОТАР - Медиа, 2012. - 888 с

2. Фармакогнозия тестовые задания и ситуационные задачи: учеб. пособие / под ред. И. А. Самылиной. - ; Мин-во образования и науки РФ. Рек. ГОУ ВПО "Мос. мед. акад. им. И. М. Сеченова". - М. : ГЭОТАР - Медиа, 2015. - 288
3. Фармакогнозия пәнінің зертханалық-тәжірибелік сабақтарына арналған қолданба [Мәтін] : оқу құралы / Ә. Қ. Патсаев. - Алматы : Эверо, 2018. - 392 бет
4. Келімханова, С. Е. Фармакогнозия [Мәтін] : практикум / С. Е. Келімханова ; ҚР денсаулық сақтау министрлігі; С. Ж. Асфендияров атындағы ҚазҰМУ. - Қарағанды : ЖК "Ақнұр", 2014. - 180 бет.

Electronic resources:

1. Сағындықова, Б. А. Дәрілердің дәріханалық технологиясы [Электронный ресурс] : оқулық / Б. А. Сағындықова, Р. М. Анарбаева. - Электрон. текстовые дан.(6,01МБ). - Шымкент : ОҚМА, 2018. - 512 бет. эл. опт. диск (CD-ROM). - 00. Тг.
2. Контроль качества и стандартизация лекарственных средств [Электронный ресурс] : методическое пособие / под ред. Раменской Г. В., Ордабаевой С. К. - ; ГБОУ ВПО "Первый МГМУ им И. М. Сеченова". РГП на ПХВ "ЮКГФА". - Электрон. текстовые дан. (4.91МБ). - Шымкент : ЮКГФА, 2015. - 285 о+эл. опт. диск (CD-ROM).
3. Медициналық-биологиялық зерттеулердегі тандап алу әдісі.Чудиновских В.Р., Абдикадыр Ж.Н., Еділбайқызы М. , 2016 ЦБ Акнурpress /<https://aknurpress.kz/reader/web/1345>
4. Токсанбаева Ж.С., Патсаев А.К., Сейдалиева С.К. Лекарственное ресурсование. – Учебное пособие. –Алматы: Эверо, 2020. – с. 116.https://www.elib.kz/ru/search/read_book/800/
5. Токсанбаева Ж.С., Патсаев Ә.Қ., Серікбаева Т.С. Дәрілік ресурстану – Оқу құралы – Алматы: Эверо,2020. – 112б https://www.elib.kz/ru/search/read_book/801/

1. **The department of Pharmacognosy**

2. **Level of training (magistracy)**

3. **Educational program:** 7M10142 «Pharmacy»

4. **Course:** 2 (scientifically-pedagogical direction)

5. **Name of elective discipline:** «State registration and re - registration of medicinal raw materials, plant and animal origin»

6. **Amount of credits:** 4

7. **Purposes:**

- Formation of theoretical knowledge (cognitive component)
- Mastering practical skills in conducting microscopy of medicinal plant raw materials and conducting a complete analysis of finished medicines used in phytotherapy
- Instilling communication skills to students on the professional presentation of the external description of LR and LRS, reasoned statement, defending their own point of view, the formation of logical thinking, the ability to participate in discussions, etc.
- Mastering legal competence by familiarizing regulatory documentation regulating the quality, effectiveness and safety of LR and LRS (GF RK, etc.)
- Motivated training of undergraduates for continuous improvement and development of abilities for independent and creative development of materials on medicinal plant raw materials

8. **Tasks:**

- to give a general idea to undergraduates about medicines used in standardization in phytotherapy and listed in the Register of the Republic of Kazakhstan
- mastering and familiarization with practical, communicative and legal skills of students with the basic provisions on medicinal plant raw materials and medicinal plants and prepared from them, dosage forms used in standardization in the Republic of Kazakhstan.
- formation of a holistic view of medicines from LRS used in standardization in the Republic of Kazakhstan.

- legal familiarization of undergraduates with the problems of medicinal plants used in standardization in the form of ready-made dosage forms in traditional medicine, disclosure of scientific approaches to their solution.
- familiarization with modern promising areas of application of medicinal plants and medicinal plant and factory-prepared ready-made dosage forms (tinctures, extracts, tablets, etc.) used in modern phytotherapy.
- to form the ability to independently understand medicinal plants and medicinal plant raw materials and finished medicines used in standardization in phytotherapy.

9. Justification of the choice of discipline:

Ensuring the proper quality of medicinal plant raw materials largely depends on the correct organization of control, its effectiveness and efficiency, as well as on the level of requirements laid down in regulatory documents (GF, AND, VAND) and the methods of analysis used. The study of the system of quality standards of medicinal plant raw materials, their products, testing methods, etc., established in a nationwide manner and mandatory for producers and consumers is currently a very urgent problem in the Republic of Kazakhstan.

10. Results of training (competence):

Knowledge (cognitive sphere)	Skills (psychomotor sphere)	Personal and professional competences (relations)
<p>-general concept of work safety in chemical testing laboratories, standardization, standards, laws used in standardization, medicinal plants, medicinal plant raw materials, the concept of biologically active substances, familiarity with the State Budget of the Republic of Kazakhstan, the Register of the Republic of Kazakhstan;</p> <p>-the general importance of medicinal plants and medicinal plant raw materials as a source of biologically active compounds used in standardization in modern phytotherapy;</p> <p>- to get acquainted with the general nomenclature of medicinal plants, medicinal plant raw materials and phytopreparations in finished form used in standardization and quality control in testing</p>	<p>- be able to correctly give a general description of medicinal preparations from medicinal plants and medicinal plant raw materials according to a common external feature, the main features characteristic of the LRS family, the main chemical composition and use in phytotherapy;</p> <p>- search and selection of material for the disclosure of the topic standardization of medicinal plants used in herbal medicine;</p> <p>-be able to use the necessary scientific, educational and professional literature for a future specialist, suitable for working with medicinal plants used in phytotherapy;</p> <p>- Be able to use regulatory documents (the Law on Medicines, the State Budget of the Republic of Kazakhstan, the Register of the Republic of Kazakhstan, standardization orders, standardization regulations, codes, etc.) on standardization of finished dosage forms used in herbal medicine;</p>	<p>- To carry out work with safety procedures of work in a chemical laboratory with medicinal plant raw materials and medicinal plants used in phytotherapy;</p> <p>- to carry out standardization and quality control of medicinal plant raw materials;</p> <p>- State registration and re-registration of some ready-made medicines: "Hawthorn tincture", "Motherwort Tincture", "Lily of the Valley Tincture" used in herbal medicine. General study of medicinal plant raw materials used in settings. Study of the general article on the GF of the Republic of Kazakhstan;</p> <p>- State registration and re-registration of some medicines: "Salvin – solution for external use", "Chlorophyllipt -alcohol</p>

<p>laboratories of the Republic of Kazakhstan;</p> <p>-to study, familiarize and master the necessary quality indicators used in the standardization of various ready-made dosage forms (tinctures, tablets, extracts, ointments, etc.) containing medicinal plant raw materials</p> <p>-recognize medicinal plants and medicinal plant raw materials used in standardization;</p> <p>- to carry out quality control according to the required indicators and analysis of medicinal products from medicinal plants and medicinal plant raw materials used in standardization;</p>	<p>- Be able to state registration and re-registration of medicinal raw materials, plant and animal origin</p> <p>The concept of registration, re-registration and certification of pharmaceutical products from raw materials of animal and vegetable origin in the Republic of Kazakhstan.</p>	<p>1% solution", "Infusion, tincture of birch buds", "Infusion of melissa herb" are derivatives of essential oils used in phytotherapy. Study of quality indicators for finished dosage forms.</p>
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11. Prerequisites: bachelor degree

12. Post-details: doctorate

13. Literature

The main:

1. Орынбасарова, К. К. Дәрілік өсімдік шикізаттарын фармакогнос-тикалық талдау: оқу құралы. - Шымкент : Кітап ЖШС, 2016. – 320б.
2. Контроль качества и стандартизация лекарственных средств [Текст] : учебное пособие / под ред. Г. В. Раменской. - ; М-во образования и науки РФ. Рек. ФГАУ "Фед. ин-т развития образования". - М. : ГЭОТАР - Медиа, 2018. - 352 с
3. Мырзағали-ұлы, Ө. Фармакогнозия [Мәтін] / Ө. Мырзағали-ұлы, Б. Дүйсембаева. - 2-ші бас. - Қарағанды : Medet Group, 2018. - 278 б. с.
4. Қазақстан Республикасының Мемлекеттік фармакопеясы. Т. 1. – Алматы: «Жібек жолы» баспа үйі, 2015. – 720 бет
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8. Государственная Фармакопея Республики Казахстан. Т.2. – Алматы: Издательский дом «Жибек жолы», 2009 – 804 с. –
9. Государственная Фармакопея Республики Казахстан. Т.3. – Алматы: Издательский дом «Жибек жолы», 2014. – 872 с. –
10. Фармакопея США. Национальный фокуляр: избранные обновления и все новые материалы с USP 29 - NF 24 по USP 33 - NF28 включительно: пер. с англ. - М. : ГЭОТАР - Медиа, 2012. - 888 с

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2. Горянов, В. И. Лекарственные растения Южно-Казахстанской области: справочник . - Шымкент : Алем, 2017. - 152 с
3. Фармакогнозия тестовые задания и ситуационные задачи [Текст] : учеб. пособие / под ред. И. А. Самылиной. - ; Мин-во образования и науки РФ. Рек. ГОУ ВПО "Мос. мед. акад. им. И. М. Сеченова". - М. : ГЭОТАР - Медиа, 2015. - 288
4. Фармакогнозия пәнінің зертханалық-тәжірибелік сабақтарына арналған қолданба [Мәтін] : оқу құралы / Ә. Қ. Патсаев. - Алматы : Эверо, 2018. - 392 бет
5. Келімханова, С. Е. Фармакогнозия [Мәтін] : практикум / С. Е. Келімханова ; ҚР денсаулық сақтау министрлігі; С. Ж. Асфендияров атындағы ҚазҰМУ. - Қарағанды : ЖК "Ақнұр", 2014. - 180 бет.

Джангозина Д.М., Лосева И.В., Ивлева Л.П., Дербуш С.Н.

Electronic resources:

1. Джангозина Д.М., Лосева И.В., Ивлева Л.П., Дербуш С.Н. Лекарственные растения, лекарственное растительное сырье и некоторые продукты переработки сырья животного происхождения. Учебное пособие по фармакогнозии. Издание второе, доп. Часть II: Лекарственные растения и лекарственное растительное сырье, содержащие сердечные гликозиды, сапонины, алкалоиды. – Алматы: издательство «Эверо», 2020/ https://www.elib.kz/ru/search/read_book/746
2. Джангозина Д.М., Лосева И.В., Ивлева Л.П., Дербуш С.Н. Лекарственные растения, лекарственное растительное сырье и некоторые продукты переработки сырья животного происхождения. Учебное пособие по фармакогнозии. Издание второе, доп. Часть I: Лекарственные растения и лекарственное растительное сырье, содержащие углеводы, жиры и жироподобные вещества, витамины, терпеноиды. – Алматы: издательство «Эверо», 2018. https://www.elib.kz/ru/search/read_book/744/
3. Джангозина Д.М., Лосева И.В., Ивлева Л.П., Дербуш С.Н. Лекарственные растения, лекарственное растительное сырье и некоторые продукты переработки сырья животного происхождения. Учебное пособие по фармакогнозии. Издание второе, доп. Часть III: Лекарственные растения и лекарственное растительное сырье, содержащие фенольные соединения и их гликозиды; кумарины, хромоны, лигнаны, антраценпроиз-водные, флавоноиды, дубильные вещества, биологически активные вещества малоизученного состава и лекарственное сырье животного происхождения. –Алматы: издательство «Эверо», 2020. –https://www.elib.kz/ru/search/read_book/748/

1. **The department of Pharmacognosy**
2. **Level of training (magistracy)**
3. **Educational program: 7M10142 «Pharmacy»**
4. **Course: 1 (scientifically-pedagogical direction)**
5. **Name of elective discipline: «Herbs in traditional medicine»**
6. **Amount of credits: 4**

7.Purposes:

Acquaintance of undergraduates with herbs which are applied in traditional medicine, the organization of preparations of medicinal plant raw materials, the chemical composition and classification of herbs, bases of rational environmental management, methods of procuring process of medicinal plant raw materials and its standardization and also with the main directions of scientific research in the field of studying of herbs.

8.Tasks: - orientation in properties and the chemical composition of herbs according to constantly growing demand in quality phytoproducts and medicinal plant raw materials;

- orientation in properties and the chemical composition of the products of animal and mineral origin which are widely used in a modern arsenal the pharmacological of medicines;
- carrying out phytochemical and merchandising analysis of raw materials of natural origin.

9. Justification of the choice of discipline:

Herbs in traditional medicine – takes special place in the system of training of specialists with pharmaceutical education after the higher education as traditional medicine and national remedies always drew attention of doctors and researchers. Some of such means after test them in clinics found application in modern medicine and received from herbs take the important place.

Herbs in traditional medicine it is considered a special subject for studying of a pharmacognosy as the main subject.

Considering the increased requirements of practical pharmacy and medicine to use of medicinal raw materials in traditional medicine, the subject "Herbs in Traditional Medicine" considers a circle of the questions connected with preparation of medicinal plant raw materials, rational and careful attitude to resources of herbs, sources of raw materials of mineral and animal origin, processing of plant raw materials and their application in medicine.

10. Results of training (competence):

Knowledge (cognitive sphere)	Skills (psychomotor sphere)	Personal and professional competences (relations)
<ul style="list-style-type: none"> - Shows knowledge of the basic concepts of herbs in traditional medicine, a subject and its value for practical activities of the expert of pharmacy - Knows difference between botanical, pharmakognostichesky and merchandising characteristic of plants. - Considering the increased requirements of practical pharmacy and medicine to use of medicinal raw materials in traditional medicine, the subject "Herbs in Traditional Medicine" considers a circle of the questions connected with preparation of medicinal plant raw materials, rational and careful attitude to resources of herbs, sources of raw materials of mineral and animal origin, processing of plant raw materials and their application in medicine. - Shows knowledge of herbs in traditional 	<ul style="list-style-type: none"> - Shows knowledge of the legislation of RK in the field of health care, the international standards, their structure and other specifications and technical documentation regulating quality, rules of preparation, acceptance, the requirement to terms and storage conditions of medicinal plant raw materials, a basis of a legal system of Kazakhstan, etc. - Carries out search and information processing about medicinal plant raw materials for consultation of doctors, druggists, the population concerning their preparation, application and storage; - Imparts to students own knowledge and abilities of work with information (educational, help, scientific) in the field of herbs in traditional medicine; - knows, herbs and their application in traditional medicine; - knows plants applied in the people at diseases of a liver and gall bladder; 	<ul style="list-style-type: none"> - Shows knowledge of the legislation of RK in the field of health care, the international standards, their structure and other specifications and technical documentation regulating quality, rules of preparation, acceptance, the requirement to terms and storage conditions of medicinal plant raw materials, a basis of a legal system of Kazakhstan, etc. - Carries out search and information processing about medicinal plant raw materials for consultation of doctors, druggists, the population concerning their preparation, application and storage; - Imparts to students own knowledge and abilities of work with information (educational, help, scientific) in the field of herbs in traditional medicine; - to carry out comparative analysis herbs and their application in traditional medicine;

<p>medicine takes special place in the system of training of specialists with pharmaceutical education after the higher education as traditional medicine and national remedies always drew attention of doctors and researchers.</p> <p>- Some of such means after test them in clinics found application in modern medicine and received from herbs take the important place.</p> <p>- Knows the BAS main groups of natural origin and their physical and chemical properties, the main ways of biosynthesis, methods of allocation, cleaning, the qualitative and quantitative analysis of the MPRM active ingredients</p>	<p>- knows plants applied in the people at diseases of urinogenital bodies;</p> <p>- Knows plants applied in the people at diseases of airways (lungs, a throat);</p> <p>- knows the poisonous plants applied in the people as medicinal means</p>	<p>- to carry out the comparative analysis of plants applied in the people at diseases of a liver and gall bladder;</p> <p>- to carry out comparative analysis on plants applied in the people at diseases of urinogenital bodies;</p> <p>- to carry out comparative analysis on plants applied in the people at diseases of airways (lungs, a throat);</p> <p>- to carry out comparative analysis on the poisonous plants applied in the people as medicinal means</p>
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11. Prerequisites: bachelor degree

12. Post-details: doctorate

13. Literature

The main:

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1. **The department of Pharmacognosy**
2. **Level of training (magistracy)**
3. **Educational program:** 7M10142 «Pharmacy»
4. **Course:** 2 (scientifically-pedagogical direction)
5. **Name of elective discipline:** «Standardization and quality control of the crushed medicinal plant raw materials and the packed-up products»
6. **Amount of credits:** 4
7. **Purposes:** Acquaintance of undergraduates with herbs which are applied in traditional medicine, the organization of preparations of medicinal plant raw materials, the chemical composition and classification of herbs, bases of rational environmental management, methods of procuring process of medicinal plant raw materials and its standardization and also with the main directions of scientific research in the field of studying of herbs.
8. **Tasks:** - orientation in properties and the chemical composition of herbs according to constantly growing demand in quality phytoproducts and medicinal plant raw materials;
- orientation in properties and the chemical composition of the products of animal and mineral origin which are widely used in a modern arsenal the therapeutic of medicines;
- carrying out phytochemical and merchandising analysis of raw materials of natural origin.
9. **Justification of the choice of discipline:**
Standardization and quality control of the crushed medicinal plant raw materials and the finished packed-up goods – takes special place in the system of training of specialists with pharmaceutical education. Some of such means after test them in clinics found application in modern medicine and received from herbs take the important place.
Considering the increased requirements of practical pharmacy and medicine to use of medicinal raw materials in traditional medicine, the subject "Herbs in Traditional Medicine" considers a circle of the questions connected with preparation of medicinal plant raw materials, rational and careful attitude to resources of herbs, sources of raw materials of mineral and animal origin, processing of plant raw materials and their application in medicine.
10. **Results of training (competence):**

Knowledge (cognitive sphere)	Skills (psychomotor sphere)	Personal and professional competences (relations)
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<ul style="list-style-type: none"> - Shows knowledge of the basic concepts of herbs in traditional medicine, a subject and its value for practical activities of the expert of pharmacy - Knows difference between botanical, pharmacognostic and merchandising characteristic of plants. - Considering the increased requirements of practical pharmacy and medicine to use of medicinal raw materials in traditional medicine, the subject "Herbs in Traditional Medicine" considers a circle of the questions connected with preparation of medicinal plant raw materials, rational and careful attitude to resources of herbs, sources of raw materials of mineral and animal origin, processing of plant raw materials and their application in medicine. - Shows knowledge of herbs in traditional medicine takes special place in the system of training of specialists with pharmaceutical education after the higher education as traditional medicine and national remedies always drew attention of doctors and researchers. - Some of such means after test them in clinics found application in modern medicine and received from herbs take the important place. - Knows the BAS main groups of natural origin and their physical and chemical properties, the main ways of biosynthesis, methods of allocation, cleaning, the qualitative and quantitative analysis of active ingredients of medicinal plant raw materials 	<ul style="list-style-type: none"> - Shows knowledge of the legislation of RK in the field of health care, the international standards, their structure and other specifications and technical documentation regulating quality, rules of preparation, acceptance, the requirement to terms and storage conditions of medicinal plant raw materials, a basis of a legal system of Kazakhstan, etc. - Carries out search and information processing about medicinal plant raw materials for consultation of doctors, druggists, the population concerning their preparation, application and storage; - Imparts to students own knowledge and abilities of work with information (educational, help, scientific) in the field of standardization of herbs 	<ul style="list-style-type: none"> - Shows knowledge of the legislation of RK in the field of health care, the international standards, their structure and other specifications and technical documentation regulating quality, rules of preparation, acceptance, the requirement to terms and storage conditions of medicinal plant raw materials, a basis of a legal system of Kazakhstan, etc. - Carries out search and information processing about medicinal plant raw materials for consultation of doctors, druggists, the population concerning their preparation, application and storage; - Imparts to students own knowledge and abilities of work with information (educational, help, scientific) in the field of standardization of medicinal plant raw materials and the packed-up products
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11. Prerequisites: bachelor degree

12. Post-details: doctorate

13. Literature

The main:

1. Контроль качества и стандартизация лекарственных средств [Текст] : учебное пособие / под ред. Г. В. Раменской. - ; М-во образования и науки РФ. Рек. ФГАУ "Фед. ин-т развития образования". - М. : ГЭОТАР - Медиа, 2018. - 352 с
2. Қазақстан Республикасының Мемлекеттік фармакопеясы. Т. 3. – Алматы: «Жібек жолы» баспа үйі, 2014. – 864 бет
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5. Гаврилов, А. С. Фармацевтическая технология. Изготовление лекарственных препаратов: учебник. - 2-е изд., перераб. ; Мин-во образования и науки РФ. Рек. ГБОУ ВПО "Первый Мос. гос. мед. ун-т им. И. М. Сеченова". - М. : ГЭОТАР - Медиа, 2016. - 760 с.

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1. Кузьменко, А. Н. Стандартизация лекарственного растительного сырья и растительных сборов методами ионо- эксклюзионной и газо- жидкостной хроматографии [Текст] : монография / А. Н. Кузьменко, В. Ю. Решетняк. - Алматы : Эверо, 2017. - 120 с
2. Кейтлин , И. М. Проблемы высокоэффективной жидкостной хроматографии, валидации и трансфера аналитических методик в вопросах и ответах [Текст] : монография / И. М. Кейтлин . - 1-е изд. - М. : ВИАЛЕК, 2019. - 224 с.
3. Келімханова, С. Е. Дәрілік өсімдік шикізатының фитохимиялық және тауарлық талдауы [Мәтін] : мед. жоғары оқу орнының фарм. фак. мен фарм. колледждерінің студенттеріне арналған оқу құралы / ҚР денсаулық сақтау министрлігі; С. Ж. Асфендияров атындағы ҚазҰМУ. - Қарағанды : ЖК "Ақнұр", 2014. - 186 бет.

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2. Контроль качества и стандартизация лекарственных средств [Электронный ресурс] : методическое пособие / под ред. Раменской Г. В., Ордабаевой С. К. - ; ГБОУ ВПО "Первый МГМУ им И. М. Сеченова". РГП на ПХВ "ЮКГФА". - Электрон. текстовые дан. (4.91МБ). - Шымкент : ЮКГФА, 2015. - 285 о+эл. опт. диск (CD-ROM).
3. Медициналық-биологиялық зерттеулердегі таңдап алу әдісі. Чудиновских В.Р., Абдикадыр Ж.Н., Еділбайқызы М. , 2016 ЦБ Aknurpress [://aknurpress.kz/reader/web/1345](http://aknurpress.kz/reader/web/1345)

1. Department: “History of Kazakhstan and social disciplines”

2. Level of training master's degree

3. Educational program: “Public Health”, Medicine, Nursing, Pharmaceutical Ecology, Pharmacy.

4. Direction: scientific and pedagogical, 2 years.

5. Course-1

6. Name of the elective discipline - “Pedagogy in higher education”

7. Number of credits (at least 5 credits) - 5 credits

8. Goal: Formation of theoretical and practical knowledge, skills and abilities of undergraduates in the implementation of teaching activities in the field of medical education.

9. Contents of the discipline (30-50 words) – General fundamentals of pedagogy: methodology, history of development. Higher education in the Republic of Kazakhstan: integration into the global educational space. The meaning and structure of pedagogical activity. Personality, professional abilities and qualifications of the teacher. Organization of the educational process in higher education based on credit technology. Theory of scientific activity of higher education. The

meaning and directions of educational work in higher education. Management of the education quality system. Pedagogy in medicine.

10. Objectives - directing undergraduates to become familiar with the theory and technology of their future profession;

11. Justification for choosing a discipline - This program is designed to provide undergraduates with the necessary knowledge, qualifications and skills in the subject to achieve learning outcomes.

12. Learning outcomes (4-6 learning outcomes according to Dublin descriptors):

1LO-Analyzes the connection between pedagogical conclusions and the world-historical development of mankind.

2 LO - Analyzes current problems of education and upbringing and through them analyzes the laws of personality formation.

3 LO – uses educational technologies in the learning process and presents its own opinion to the scientific community and society on ways to improve it.

4 LO - Ability for self-analysis and self-improvement, pedagogical competence in teaching medical subjects.

13. Prerequisites - no

14. Postrequisites - teaching practice

15. Literature:

1. Педагогика в медицине. Ч. 1. [Текст] : учебное пособие / под ред. Н. В. Кудрявой. - 3-е изд., испр. и доп. - Алматы : CyberSmith, 2017. - 192 с.

2. Педагогика в медицине. Ч. 2. [Текст] : учебное пособие / под ред. Н. В. Кудрявой. - 3-е изд., испр. и доп. - Алматы : CyberSmith, 2017. - 244 с.

3. Психология и педагогика для студентов медицинских вузов. 1 ч. : учебник / под ред. Н. В. Кудрявой. - Алматы : Эверо, 2017. - 196 с.

4. Психология и педагогика для студентов медицинских вузов. 2 ч.: учебник / под ред. Н. В. Кудрявой. - Алматы : Эверо, 2017. – 192

5. Жұмабекова, Ф. Н. Педагогикалық мамандыққа кіріспе [Мәтін] : оқулық / Ф. Н. Жұмабекова. - ; Л. Н. Гумилев атындағы Еуразия ұлттық ун- тінің ғыл. кеңесі ұсынған. - Алматы : Эверо, 2014. - 274 бет.

6. Мирза, Н. В. Кәсіби-педагогикалық қарым-қатынас [Мәтін] : оқу құралы / Н. В. Мирза, Р. К. Маженова ; ҚР БҒМ; Акад. Е. А. Бөкетов атындағы ҚарМУ. - Алматы : Эверо, 2014. - 160 бет.

7. Шунк, Дейл Х. Оқыту теориясы: білім беру көзжиегі = Learning theories an educational perspective : оқулық / Дейл Х. Шунк ; Қаз. тіл ауд. Б. М. Мизамхан [және т.б.]. - 7-ші бас. - Алматы : Ұлттық аударма бюросы, 2019. - 608 бет.

8. Pedagogy [Текст] : textbook / К. К. Zhampeisova [and etc.]. - Almaty : Association of higher educational institutions of Kazakhstan, 2016. - 390 p.

1. Department of Pharmacology, Pharmacotherapy and Clinical Pharmacology

2. Level of training: Master's degree

3. Educational program: "Pharmacy", scientific and pedagogical direction

4. Course: 1, 2

5. Name of elective discipline: "Proper Clinical Practice (PCP)"

6. Number of credits: 5

7. Purpose: to teach graduates of higher medical institutions in the OP "Pharmacy" methodology for conducting clinical trials in accordance with international standards

8. Content of the discipline: The GCP standard (Good Clinical Practice) is an international standard of ethical norms and quality of scientific research, describing the rules for the development, conduct, documentation and reporting of research that involves the participation of a person as a

test subject (clinical research). The discipline shows theответствие research compliance with this standard: the rights of research participants; rules for ensuring their safety; the desire for non-harm; requirements for the reliability of research.

9. Tasks:

- * develop methodologies for conducting clinical trials in accordance with international standards;
- * introduce you to the ethical rules for conducting research on volunteers;
- * predict and evaluate the side effects of drugs in an experiment on volunteers.

10. Justification for the choice of discipline: The elective discipline "Good Clinical Practice (GCP)" is the final link in the chain of medical and biological disciplines at the Faculty of Pharmacy. As an integrative subject, Good Clinical Practice (GCP) combines a number of logically related and harmoniously complementary disciplines: pharmacology, pharmacotherapy, and evidence-based medicine.

11. Learning outcomes:

LO1	Conducts clinical trials, makes documentation, and reports on research.
LO2	Provides information and advice to researchers
LO3	formulates evidence and solves problems in the field of clinical practice. Ability to communicate information, ideas, problems, and solutions to both specialists and non-specialists
LO4	He can predict and control the risk of side effects of medications and, if they start, use methods of correction and prevention.
LO5	Searches and interprets information and data about relevant clinical practice.

12. Prerequisites: The functional system and clinical and pharmacological characteristics of individual groups and drugs

13. Post-requirements: professional development.

14. Literature:

Main page:

1. Kalieva Sh. S. Clinical pharmacology and rational pharmacotherapy. Volume 1: textbook / Sh. S. Kalieva, N. A. Minakova . . . Almaty : Evero Publ., 2016, 460 p.
2. Kalieva, Sh. S. Clinical pharmacology and rational pharmacotherapy. Volume 2: textbook / Sh. S. Kalieva, N. A. Simokhina. Almaty: Evero Publ., 2016, 288 p.
3. Құлмағамбетов И. Р. Клиникалық фармакология. 1-бөлім : оқу құралы / И. Р. Құлмағамбетов. - Almaty : New book, 2022. - 320 бет. s. (Code 615.03 / К 74-913249).
4. Құлмағамбетов И. Р. Клиникалық фармакология. 2-бөлім : оқу құралы / И. Р. Құлмағамбетов. - Almaty : New book, 2022. - 376 бет. p. (Code 615.03 / К 74-858117)
5. Рахимов, Қ. Д. Клиникалық фармакология: оқу құралы. - Almaty: ЖШС "Zhaniya-Polygraph Housing and Communal Services, 2013. - 406 бет. s
6. Ormanov, N. J. Pharmacotherapy of diseases of the digestive system [Text]: N. J. Ormanov, T. N. Ormanov, G. ZhСадырханова. Sadyrkhanova; Textbook approved by CMS SKSFA. - Shymkent: SKGFA, 2013. - 200 p.
7. Рахимов Қ.Д. Фармакология: оқу құралы. - Alm: ZHSHS "Zhaniya-Polygraf", 2014. - 554 бет. s.
8. Кардиологиялық фармакотерапия [Мәтін] : оқулық / Н. Ж. Орманов [ж/б] ; ҚР денсаулық сақтау және әлеуметтік даму министрлігі. ОҚМФА. - Shymkent : ОКМФА, 2015. - 216 бет s

9. Орманов , Н. Ж. Ревматологиялық фармакотерапия [Мәтін] : оқу құралы / Н. Ж. Орманов . - Almaty: ESPI, 2021. - 180 бет.
10. Rational pharmacotherapy in oncology [Text]: ruk. for practicing doctors / ed. by M. I. Davydov, V. A. Gorbunov, Moscow: GEOTAR-Media, 2015, 844 p. (Series of manuals for practicing doctors).
11. Kliniko-farmak. approaches to perioperative antithrombotic therapy Dyusembayeva N. K., 2016 <https://www.aknurpress.kz/reader/web/1560>

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1. Katzung , Bertram G. Basic and Clinical Pharmacology [Text] : textbook / Katzung Bertram G. - 14 nd ed. - [S. l.] : McGrawHill education, 2018.-1250 p.
2. Goodman end Gilman's A. The Pharmacological Basis of Therapeutics [Text]: textbook/ Goodman & Gilman's A.; editor L. L. Brunton . - 13 nd ed. - New York: McGraw-Hill Education, 2018.-1419 p.

Additional information

1. Pharmacology: nuskaulyk = Pharmacology : manual / G.. M.. Pichkhadze [Т.Б.]. - М.: "Litterra", 2017. - 640 бет
2. Mashkovsky M. D. Medicinal products. 16. - building. pererab., add. iispr. M. Novayavolna. 2017. - 1216 с.
3. Микробқа қарсы дәрілердің фармакологиясы: оқу құралы / Т. А. Муминов [ж/б.]; қаз. тіл. ауд. Н. М. Малдыбаева. - Almaty: Letter Print. Kazakhstan, 2016. - 552 бет. p.
4. Pharmacology of antimicrobial agents: textbook. posobie / Т. А. Муминов. - Almaty: Letter Print. Kazakhstan, 2016. - 784 с.
5. Zhaugasheva, S. K. Pharmacological glossary / S. K. Zhaugasheva, N. T. Dildabekova, Rashid. Sajid = Pharmacologiyalyk glossary / sozdik = PHARMACOLOGIC GLOSSARY: sovar. - 2nd ed.; Approved by I rec. to the ed. Academic Council of KSMU. - Almaty: Evero, 2013. - 132 p.
6. Ormanov N. J. Pharmacological reference book of medicinal products (classification, nomenclature, mechanism of action and indications for use): textbook.- methodical manual/ SKGFA. - ; Approved by the Academic Совете ЮКГФА Council of the SCFA. - Almaty: Evero, 2013. - 138 p.

Electronic publications:

1. Petrov, V. I. Clinical pharmacology and pharmacotherapy in real medical practice master class [Electronic resource]: textbook / V. I. Petrov. - Electron. tekstovye dan. (63,5 MB). - M.: Publishing group "GEOTAR-Media", 2011. - 880 p. e. opt. disk (CD-ROM).
- 2.. A doctor's consultant. Clinical pharmacology. Version 1.1 [Electronic resource]: manual. - Electron. tekstovye dan. (132 Mb). - Moscow: Publishing group "GEOTAR-Media", 2010. - e-opt. disk (CD-ROM).
3. Асқорыту ағзалары ауруларының фармакотерапиясы [Электронный ресурс] : оқулық / З. А. Керимбаева [Т.б.]. - Электрон. tekstovye dan. (37.7 MB). - Shymkent : ОКМА, 2018. - 234 бет. e. wholesale disk (CD-ROM).
4. Kalieva Sh. S., Minakova N. A. Clinical pharmacology and rational pharmacotherapy. Volume 1-Textbook. – Эверо, 2020. https://www.elib.kz/ru/search/read_book/835/.
5. Kalieva Sh. S., Simokhina N. A. Clinical pharmacology and rational pharmacotherapy volume 2 / Kalieva Sh. S., Simokhina N. A., 2020. - 289 p. <https://www.elib.kz/ru>
6. Kalieva Sh. S. Clinical pharmacology and rational pharmacotherapy in gastroenterology / Kalieva Sh. S., 2020. - 401 p. <https://www.elib.kz/ru>

1. Department of Pharmacology, Pharmacotherapy and Clinical Pharmacology

2. Level of training: Master's degree

3. Educational program: "Pharmacy", scientific and pedagogical direction

4. Course: 1

5. Name of elective discipline: Personalized pharmacotherapy

6. Number of credits: 5

7. Objective: To conduct effective pharmacotherapy of various diseases, prevent side effects, taking into account the optimization and individuality of prevention and treatment by determining the individual properties of the body

8. Content of the discipline: Introduction to personalized pharmacotherapy. Individual factors influencing the pharmacological response. The human genome. Research in the field of pharmacogenetics and pharmacogenomics. OMICS technologies. Pharmacogenetic aspects of therapy in diseases of various organs and systems. Teranostics. Pharmacogenetic test systems. Databases of pharmacogenetic studies. Digital technologies in personalized pharmacotherapy.

9. Tasks:

- teach the methodology of rational prescribing of medicines, taking into account the individual characteristics of the patient;
- teach you to predict and evaluate the side effects of medicines, taking into account the individual characteristics of the patient;
- teach them to evaluate possible drug interactions, taking into account the individual characteristics of the patient;

10. Justification of the choice of discipline: The elective discipline "Personalized Pharmacotherapy" is the final link in the chain of medical and biological disciplines at the Faculty of Medicine. As an integrative subject, Personalized Pharmacotherapy combines a number of logically related and harmoniously complementary disciplines: pharmacology, bio-chemistry, pharmacotherapy, evidence-based medicine, genetics, pharmacogenetics, molecular biology, and OMICS technologies.

11. Learning outcomes:

LO1	Demonstrates knowledge in the field of biochemical, microbiological, and molecular biotechnological research using DNA analysis methods.
LO2	Selects the most effective and safe drugs based on personalized therapy methods
LO3	Interacts with doctors and other specialists to conduct personalized therapy to ensure rational pharmacotherapy
LO4	Searches for individualized pharmacotherapy using information and communication resources. reference books, databases, and Internet resources.

12. Prerequisites: Clinical and pharmacological characteristics of individual groups and drugs and the formula system.

13. Post-requirements: professional development.

14. Literature:

Main page:

1. Kalieva, Sh. S. Clinical pharmacology and rational pharmacotherapy. Volume 1: textbook / Sh. S. Kalieva, N. A. Minakova . . . Almaty : Evero Publ., 2016, 460 p .

2. Kalieva, Sh. S. Clinical pharmacology and rational pharmacotherapy. Volume 2: textbook / Sh. S. Kalieva, N. A. Simokhina. - Almaty :Evero, 2016. - 288 p.

3. Гринхальх Т. Дәлелді медицина негіздері: оқулық: аударма ағылшын тілінен/ жауапты ред. Г.С. Кемелова; қазақ тіліне ауд. Т.К.Сағадатова. –М.: ГЭОТАР- Медиа, 2014
4. Құлмағамбетов, И. Р. Клиникалық фармакология. 1-бөлім: оқу құралы / И. Р. Құлмағамбетов. Almaty : Evero Publ., 2014, 320.p. (in Russian)c.
5. Құлмағамбетов, И. Р. Клиникалық фармакология. II-бөлім: оқу құралы / И. Р. Құлмағамбетов. Almaty : Evero Publ., 2014, 392. p. (in Russian).
6. Petrov V. I. Medicine based on evidence: textbook. manual / V. I. Petrov, S. V. Nedogoda.- ; Rivers. Educational.-and methodical obed.by med. and pharm. education of Russian universities, Moscow: GEOTAR-Media, 2012

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1. Rational pharmacotherapy in oncology: hands-on, for practicing physicians/ edited by M. I. Davydov and, V. A. Gorbunov, Moscow: GEOTAR-Media, 2015, 844 p.
2. Petrov V. I. Clinical pharmacology and pharmacotherapy in real medical practice: master class: textbook/ V. I. Petrov.- ; Rivers. State Educational Institution DPO " Rossiyskaya med. aring road. postgraduate education", Moscow: GEOTAR-Media, 2011, 880 p.(in Russian).
3. Дәріс кешені- Дәрілерді тиімді пайдалану пәні бойынша: дәріс кешені / фармакология, фармакотерапия және клиникалық фармакология кафедрасы. - Shymkent : ОКМФА Publ., 2016. - 65 бет. р..
4. Rakhimov K. D., Zordinova K. A. Guide to the safe use of medicines: a guide/ K. D. Rakhimov, K. A. Zordinova; Ministry of Health of the Republic of Kazakhstan; Almaty State Institute of Health Improvement. Research Institute of Pharmacology and Toxicology; National.акадAcademy of Sciences of the Republic of Kazakhstan. Almaty: B. I., 2009, 244 p. (in Russian).

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1. Petrov, V. I. Clinical pharmacology and pharmacotherapy in real medical practice master class [Electronic resource]: textbook / V. I. Petrov. - Electron. tekstovye dan. (63,5 MB). - M.: Publishing group "GEOTAR-Media", 2011. - 880 p. e. opt. disk (CD-ROM).
- 2.. A doctor's consultant. Clinical pharmacology. Version 1.1 [Electronic resource]: manual. - Electron. тtextovye dan. (132 Mb). - Moscow: Publishing group "GEOTAR-Media", 2010. - e-opt. disk (CD-ROM).

1. Department of Pharmacology, Pharmacotherapy and Clinical Pharmacology

2. Level of training: Master's degree

3. Educational program: "Pharmacy", scientific and pedagogical direction

4. Course: 1

5. Name of elective discipline: Selection and substitution of medicines: generics and biosimilars

6. Number of credits: 5

7. Objective: To develop skills in the rational use of general-purpose drugs and biosimilars in drug therapy

8. Content of the discipline: Modern organization of drug supply. Study of drug substitution in the healthcare system: clinical efficacy, safety, economic feasibility. Procedure for determining the substitutability of medicinal products for medical use. Original and generic medicines in therapeutic practice. Problems of generic substitution: pros and cons.

9. Tasks:

- teach them to evaluate the use of generics and biosimilars, taking into account the individual characteristics of the patient.
- teach you how to make the optimal choice and replacement of a drug, if necessary, in order to improve the rationality of pharmacotherapy.

10. Justification of the choice of the discipline: Development of the development and production of high-tech drugs and biosimilars. Significant nomenclature of generic drugs. Possible substitutions for bioequivalent drugs. Economic accessibility of generics in the pharmaceutical market and in the drug supply of media organizations. Biosimilars are widely used in oncological practice, in the treatment of autoimmune diseases, etc.

11. Learning outcomes:

LO1	Demonstrates knowledge of modern organization of drug provision in medical organizations.
LO2	Defines and uses the procedure for replacing generic drugs and original drugs for medical use
LO3	is able to replace drugs taking into account clinical efficacy, safety, and economic feasibility
LO4	4Provides recommendations and justifications for choosing and replacing original drugs with generics and biosimilars
LO5	is able to demonstrate effective communication when discussing drug replacement issues
LO6	Based on scientific literature, data, etc. scientific publications, data from the national drug formulary, international drug formularies, etc. able to independently develop skills in the selection and replacement of medicines.

12. Prerequisites: Clinical and pharmacological characteristics of individual groups and drugs and the formula system.

13. Post-requirements: professional development.

14. Literature:

1. Kalieva Sh. S. Clinical pharmacology and rational pharmacotherapy. Volume 1: textbook / Sh. S. Kalieva, N. A. Minakova . . Almaty : Evero Publ., 2016, 460 p.
2. Kalieva, Sh. S. Clinical pharmacology and rational pharmacotherapy. Volume 2: textbook / Sh. S. Kalieva, N. A. Simokhina. Almaty: Evero Publ., 2016, 288 p.
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4. Құлмағамбетов И. Р. Клиникалық фармакология. 2-бөлім : оқу құралы / И. Р. Құлмағамбетов. - Almaty : New book, 2022. - 376 bet. p. (Code 615.03 / К 74-858117)
5. Рахимов, Қ. Д. Клиникалық фармакология: оқу құралы. - Almaty: ЖШС "Zhaniya-Polygraph Housing and Communal Services, 2013. - 406 bet. s
6. Ormanov, N. J. Pharmacotherapy of diseases of the digestive system [Text]: N. J. Ormanov, T. N. Ormanov, G. ZhСадырханова. Sadyrkhanova; Textbook approved by CMS SKSFA. - Shymkent: SKGFA, 2013. - 200 p.
7. Рахимов Қ,Д. Фармакология: оқу құралы. - Alm: ZHSHS "Zhaniya-Polygraf", 2014. - 554 betss.
8. Кардиологиялық фармакотерапия [Мәтін] : оқулық / Н. Ж. Орманов [ж/б] ; ҚР денсаулық сақтау және әлеуметтік даму министрлігі. ОҚМФА. - Shymkent : ОКМФА, 2015. - 216 bet s
9. Орманов , Н. Ж. Ревматологиялық фармакотерапия [Мәтін] : оқу құралы / Н. Ж. Орманов . - Almaty: ESPI, 2021. - 180 bet.

10. Rational pharmacotherapy in oncology [Text]: ruk. for practicing doctors / ed. by M. I. Davydov, V. A. Gorbunov, Moscow: GEOTAR-Media, 2015, 844 p. (Series of manuals for practicing doctors).

11. Kliniko-farmak. approaches to perioperative antithrombotic therapy Dyusembayeva N. K., 2016 <https://www.aknurpress.kz/reader/web/1560>

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1. Katzung , Bertram G. Basic and Clinical Pharmacology [Text] : textbook / Katzung Bertram G. - 14 nd ed. - [S. l.] : McGrawHilleducation, 2018.-1250 p.

2. Goodman and Gilman's A. The Pharmacological Basis of Therapeutics [Text]: textbook / Goodman & Gilman's A.; editor L.

L. Brunton . - 13 nd ed. - New York: McGraw-Hill Education, 2018.-1419 p.

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1. Pharmacology: nuskaulyk = Pharmacology : manual / G.. M.. Pichkhadze [Т..В.]. - М.: "Litterra", 2017. - 640 bet

2. Mashkovsky M. D. Medicinal products. 16. - building. pererab., add. iispr. M. Novaya volna. 2017. - 1216c.

3. Микробқа қарсы дәрілердің фармакологиясы: оқу құралы / Т. А. Муминов [ж/б.]; қаз. тіл. ауд. Н. М. Малдыбаева. - Almaty: Letter Print. Kazakhstan, 2016. - 552 bet. p..

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6. Ormanov N. J. Pharmacological reference book of medicinal products (classification, nomenclature, mechanism of action and indications for use): textbook.- methodical manual / SKGFA. - ; Approved by the Academic Совете ЮКГФ А Council of the SCFA. - Almaty: Evero, 2013. - 138 p.

Electronic publications:

1. Petrov, V. I. Clinical pharmacology and pharmacotherapy in real medical practice master-class [Electronic resource]: textbook / V. I. Petrov. - Electron. tekstovye dan. (63,5 MB). - M.: Publishing group "GEOTAR-Media", 2011. - 880 p. e. opt. disk (CD-ROM).

2.. A doctor's consultant. Clinical pharmacology. Version 1.1 [Electronic resource]: manual. - Electron. ttextovye dan. (132 Mb). - Moscow: Publishing group "GEOTAR-Media", 2010. - e-opt. disk (CD-ROM).

3. Асқорыту ағзалары ауруларының фармакотерапиясы [Электронный ресурс] : оқулық / З. А. Керимбаева [т.б.]. - Электрон. ttextovye dan. (37.7 MB). - Shymkent : ОКМА, 2018. - 234 bet. e. wholesale disk (CD-ROM).

4. Kalieva Sh. S., Minakova N. A. Clinical pharmacology and rational pharmacotherapy. Volume 1-Textbook. – Эверо, 2020. https://www.elib.kz/ru/search/read_book/835/.

5. Kalieva Sh. S., Simokhina N. A. Clinical pharmacology and rational pharmacotherapy volume 2 / Kalieva Sh. S., Simokhina N. A., 2020. - 289 p. <https://www.elib.kz/ru>

6. Kalieva Sh. S. Clinical pharmacology and rational pharmacotherapy in gastroenterology / Kalieva Sh. S., 2020. - 401 p. <https://www.elib.kz/ru>

1. Department of Pharmacology, Pharmacotherapy and Clinical Pharmacology

2. Level of training: Master's degree

3. Educational program: "Pharmacy", scientific and pedagogical direction

4. Course: 1

5. Name of elective discipline: Rational antimicrobial therapy and antibiotic prophylaxis

6. Number of credits: 5

7. Goal: Formation and development of skills in the use of antimicrobial agents in order to curb the development of antibiotic resistance

8. Content of the discipline: Pharmacodynamics, pharmacokinetics, spectrum of antimicrobial activity. Principles of choice (empirical and etiotropic), determination of the dosage regimen depending on the location of infection and severity of the condition, kidney and liver function. Methods for evaluating the effectiveness and safety of antimicrobial drugs based on the principles of evidence-based medicine. Combination of antimicrobial drugs and interactions when co-administered with drugs of other groups. Pharmacological incompatibility in the use of antimicrobial agents.

9. Tasks:

- teach the skills of rational use of antimicrobial agents for various infectious diseases;
- developing skills to assess the rational use of antimicrobial agents.

10. Justification for the choice of the discipline: the problem of antibiotic resistance is one of the main problems voiced by WHO for the next 10 years. It is necessary to develop knowledge and skills in the rational administration of antimicrobial drugs at all levels of medical care and at the level of drug sales.

11. Learning outcomes:

LO1	Demonstrates knowledge of the effective and safe use of antimicrobials
LO2	is able to interact effectively with healthcare professionals in order to achieve the best results for the patient on the rational use of antimicrobials
LO3	is able to assess risks and use the most effective methods to ensure a high level of safety in prescribing antimicrobials
LO4	able to act within the legal and organizational field of the healthcare system of the Republic of Kazakhstan work within the legal and organizational field of the healthcare system of the Republic of Kazakhstan As part of interprofessional teams to implement drug management policies of rational use of medicines
LO5	is able to critically evaluate specialized literature, effectively use international databases in their daily activities, participate in research work
LO6	is able to learn independently and train other members of the professional team, actively participate in discussions, conferences and other forms of continuous professional development on the rational use of antimicrobial medicines.

12. Prerequisites: Clinical and pharmacological characteristics of individual groups and drugs and the formula system.

13. Post-requirements: professional development.

14. Literature:

1. Kalieva Sh. S. Clinical pharmacology and rational pharmacotherapy. Volume 1: textbook / Sh. S. Kalieva, N. A. Minakova . . . Almaty : Evero Publ., 2016, 460 p.
2. Kalieva, Sh. S. Clinical pharmacology and rational pharmacotherapy. Volume 2: textbook / Sh. S. Kalieva, N. A. Simokhina. Almaty: Evero Publ., 2016, 288 p.
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10. Rational pharmacotherapy in oncology [Text]: ruk. for practicing doctors / ed. by M. I. Davydov, V. A. Gorbunov, Moscow: GEOTAR-Media, 2015, 844 p. (Series of manuals for practicing doctors).
11. Kliniko-farmak. approaches to perioperative antithrombotic therapy Dyusembayeva N. K., 2016 <https://www.aknurpress.kz/reader/web/1560>

In English

1. Katzung , Bertram G.Basic and Clinical Pharmacology [Text] : textbook / Katzung Bertram G. - 14 nd ed. - [S. l.] : McGrawHilleducation, 2018.-1250 p.
2. Goodman end Gilman'sA.ThePharmacologicalBasisofTherapeutics[Text]: textbook/ Goodman&Gilman'sA.;editorL. L. Brunton . -13 nd ed. -New York:McGraw-HillEducation,2018.-1419 p.

Additional information

- 1.Pharmacology: nuskaulyk = Pharmacology : manual / G.. M.. Pichkhadze [Т..В.]. - М.: "Litterra", 2017. - 640 бет
2. Mashkovsky M. D. Medicinal products.16. - building.pererab., add. iispr. M. Novayavolna.2017. –1216с.
3. Микробқа қарсы дәрілердің фармакологиясы: оқу құралы /Т. А. Муминов [ж/б.]; қаз. тіл. ауд. Н. М. Малдыбаева.- Almaty: Letter Print. Kazakhstan, 2016. -552 бет. p..
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5. Kalieva Sh. S., Simokhina N. A. Clinical pharmacology and rational pharmacotherapy volume 2 / Kalieva Sh. S., Simokhina N. A., 2020. - 289 p. <https://www.elib.kz/ru>
6. Kalieva Sh. S. Clinical pharmacology and rational pharmacotherapy in gastroenterology / Kalieva Sh. S., 2020. - 401 p. <https://www.elib.kz/ru>

1. Department of Pharmacology, Pharmacotherapy and Clinical Pharmacology

2. Level of training: Master's degree

3. Educational program: "Pharmacy", scientific and pedagogical direction

4. Course: 1

5. Name of the elective discipline: Assessment of the use of medicines and clinical and pharmacological expertise

6. Number of credits: 5

7. Objective: Formation and development of skills in the use of medicines, taking into account clinical and economic efficiency in pediatric practice, in special groups of patients and polymorbidity

8. Content of the discipline: Features of pharmacodynamics and pharmacokinetics in children and newborns. Features of dosage, dosage forms and means of delivery in children. Rational therapy of diseases in children based on the principles of evidence-based medicine. Clinical and pharmacological approaches, taking into account individual characteristics of pharmacokinetics and pharmacodynamics, to the choice and rational use in neonatology.

9. Tasks:

- teach the skills of rational use of medicinal products in different age groups (children's age, gerontology);
- formation of skills of working in the conditions of children's medical organizations on the rational use of medicines.

10. Justification of the choice of discipline: special attention in pharmacotherapy is paid to children's age, taking into account the anatomical and physiological features of the body

11. Learning outcomes:

LO1	Demonstrates knowledge of the effective and safe use of medicines in medical practice and in special patients
LO2	is able to interact effectively with healthcare professionals in order to achieve the best results for the patient, the principles of rational choice of drugs for patients, taking into account age
LO3	able to assess risks and use the most effective methods to ensure a high level of safety and quality of medical
LO4	able to act within the legal and organizational framework of the health care system of the Republic of Kazakhstan in providing medical care, provide basic and extended assistance

	in emergency situations, and work as part of interprofessional teams to implement the national health promotion policy.
LO5	is able to formulate adequate research goals and objectives, critically evaluate specialized literature, effectively use international databases in their daily activities, participate in the work of research
LO6	able to learn independently and train other members of the professional team, actively participate in discussions, conferences and other forms of continuous professional development.

12. Prerequisites: Clinical and pharmacological characteristics of individual groups and drugs and the formula system.

13. Post-requirements: professional development.

14. Literature:

1. Kalieva Sh. S. Clinical pharmacology and rational pharmacotherapy. Volume 1: textbook / Sh. S. Kalieva, N. A. Minakova . . Almaty : Evero Publ., 2016, 460 p.

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2. Goodman end Gilman's A. The Pharmacological Basis of Therapeutics [Text]: textbook/ Goodman & Gilman's A.; editor L.

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6. Kalieva Sh. S. Clinical pharmacology and rational pharmacotherapy in gastroenterology / Kalieva Sh. S., 2020. - 401 p. <https://www.elib.kz/ru>

1. Department of Pharmacology, Pharmacotherapy and Clinical Pharmacology

2. Level of training: Master's degree

3. Educational program: "Pharmacy", scientific and pedagogical direction

4. Course: 1

5. Name of elective discipline: Pharmacovigilance and monitoring of adverse drug reactions

6. Number of credits: 5

7. Objective: To develop skills in therapy taking into account the clinical and economic effectiveness of medicines in specific clinical situations, taking into account polymorbidity in accordance with the main protocols and orders of the Ministry of Health of the Republic of Kazakhstan, the basics of the formulary system for the rational use of medicines.

8. Content of the discipline: Pharmacovigilance. Principles of good pharmacovigilance practice. Pharmacovigilance is a tool for regulating the circulation of medicines. The main directions of work of the pharmacovigilance system. Pharmacovigilance reporting system. Risk management plan and measures to minimize ai in the pharmaco-surveillance system, roles and responsibilities of

LO1	Demonstrates knowledge and skills in identifying, analyzing and evaluating reports of adverse drug effects
LO2	Prevents the risk of negative drug
LO3	Able RO3 is able to report cases of serious unforeseen adverse drug reactions
LO4	Contacts and collaborates with healthcare professionals on the identification and registration of side effects of medicines
LO5	is able to independently develop the ability to identify and skills of working in the pharmacovigilance system

participants in the pharmacovigilance system Characteristics of reliable pharmacovigilance systems.

9. Tasks:

- teach them to identify and predict the development of undesirable drug reactions in order to improve the rationality of pharmacotherapy;
- teach you how to work in the pharmacovigilance system of the Republic of Kazakhstan;

10. Justification for the choice of the discipline: Functioning of the pharmacovigilance system in medical and pharmaceutical organizations based on the decree of the Acting Minister of Health of the Republic of Kazakhstan dated February 4, 2021 No. KR DSM-15 On approval of good pharmaceutical practices.

11. Learning outcomes:

12. Prerequisites: Clinical and pharmacological characteristics of individual groups and drugs and the formula system.

13. Post-requirements: professional development.

14. Literature:

1. Kalieva Sh. S. Clinical pharmacology and rational pharmacotherapy. Volume 1: textbook / Sh. S. Kalieva, N. A. Minakova . . Almaty : Evero Publ., 2016, 460 p.
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6. Kalieva Sh. S. Clinical pharmacology and rational pharmacotherapy in gastroenterology / Kalieva Sh. S., 2020. - 401 p. <https://www.elib.kz/ru>

1. Department of Pharmacology, Pharmacotherapy and Clinical Pharmacology

2. Level of training: Master's degree

3. Educational program: "Pharmacy", scientific and pedagogical direction

4. Course: 1

5. Name of the elective discipline: Clinical and pharmacological characteristics of individual groups and drugs and the formula system.

6. Number of credits: 10

7. Objective: To develop skills in therapy taking into account the clinical and economic effectiveness of medicines in specific clinical situations, taking into account polymorbidity in accordance with the main protocols and orders of the Ministry of Health of the Republic of Kazakhstan, the basics of the formulary system for the rational use of medicines.

8. Content of the discipline: Principles of pharmacotherapy of certain diseases. Rational choice of medicines, taking into account their effectiveness and safety. Rules for providing medicines to medical organizations. The formula system. Development of a drug form. Need analysis.

9. Tasks:

- teach them to evaluate the prescription of medicines, taking into account the clinical and pharmacological characteristics and individual characteristics of the patient;
- teach you how to make the optimal choice and replacement of a drug, if necessary, in order to improve the rationality of pharmacotherapy.

10. Justification of the choice of discipline: Development of the clinical pharmacy service. The need for in-depth training on the rational use of medicines, the development of drug formulae in medical organizations.

11. Learning outcomes:

LO1	Demonstrates knowledge and skills of rational use of medicines of certain groups (pharmacokinetic, pharmacodynamic parameters, indications and contraindications for use, undesirable drug reactions, dosage regimen, application features depending on the condition and age of the patient).
LO2	is able to effectively interact with all stakeholders on the rational use of medicines and on the development of a drug form (patients, doctors, specialists of the laboratory service, epidemiology service, public health, regulatory authorities, etc.), providing advice, expert function, organizational activities
LO3	able to assess risks and use the most effective medicines in accordance with the requirements of the Legislation of the Russian Federation. with evidence-based practice to ensure a high level of safety and quality of medical care
LO4	RO4 is able to act within the legal and organizational framework of the healthcare system of the Republic of Kazakhstan in the development, approval and promotion of the drug form
LO5	is able to analyze the consumption of medicines, analyze the effectiveness and safety of pharmacotherapy, propose and make decisions on drug provision, promotion of new technologies in the pharmaceutical industry therapy sessions.
LO6	is able to learn independently and train other members of the professional team, actively participate in discussions, conferences and other forms of continuous professional development.

12. Prerequisites: none

13. Post-requirements: professional development.

14. Literature:

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3. Құлмағамбетов И. Р. Клиникалық фармакология. 1-бөлім : оқу құралы / И. Р. Құлмағамбетов. - Almaty : New book, 2022. - 320 бет. s. (Code 615.03 / К 74-913249).
4. Құлмағамбетов И. Р. Клиникалық фармакология. 2-бөлім : оқу құралы / И. Р. Құлмағамбетов. - Almaty : New book, 2022. - 376 бет. p. (Code 615.03 / К 74-858117)
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7. Рахимов Қ.Д. Фармакология: оқу құралы. -Alm: ZHSHS "Zhaniya-Polygraf", 2014. - 554бетss.
8. Кардиологиялық фармакотерапия [Мәтін] : оқулық / Н. Ж. Орманов [ж/б] ; ҚР денсаулық сақтау және әлеуметтік даму министрлігі. ОҚМФА. - Shymkent : ОКМФА, 2015. - 216 бет s
9. Орманов , Н. Ж. Ревматологиялық фармакотерапия [Мәтін] : оқу құралы / Н. Ж. Орманов . - Almaty: ESPI, 2021. - 180 бет.
10. Rational pharmacotherapy in oncology [Text]: ruk. for practicing doctors / ed. by M. I. Davydov, V. A. Gorbunov, Moscow: GEOTAR-Media, 2015, 844 p. (Series of manuals for practicing doctors).
11. Kliniko-farmak. approaches to perioperative antithrombotic therapy Dyusembayeva N. K., 2016 <https://www.aknurpress.kz/reader/web/1560>

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2. Goodman end Gilman'sA.ThePharmacologicalBasisofTherapeutics[Text]: textbook/ Goodman&Gilman'sA.;editorL. L. Brunton . -13 nd ed. -New York:McGraw-HillEducation,2018.-1419 p.

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- 1.Pharmacology: nuskaulyk = Pharmacology : manual / G.. M.. Pichkhadze [Т..В.]. - М.: "Litterra", 2017. - 640 бет
2. Mashkovsky M. D. Medicinal products.16. - building.pererab., add. iispr. M. Novayavolna.2017. –1216с.
3. Микробқа қарсы дәрілердің фармакологиясы: оқу құралы /Т. А. Муминов [ж/б.]; қаз. тіл. ауд. Н. М. Малдыбаева.- Almaty: Letter Print. Kazakhstan, 2016. -552 бет. p..
4. Pharmacology of antimicrobial agents: textbook.posobie / Т. А. Muminov. - Almaty: Letter Print. Kazakhstan, 2016. - 784s.
5. Zhaugasheva, S. K. Pharmacological glossary/ S. K. Zhaugasheva, N. T. Dildabekova, Rashid. Sajid =Pharmacologiyalyk glossary / sozдіk = PHARMACOLOGIC GLOSSARY: sovar. - 2nd ed.; Approved by I rec. to the ed. Academic Council of KSMU. -Almaty:Evero, 2013. -132 p.
6. Ormanov N. J. Pharmacological reference book of medicinal products (classification, nomenclature,mechanism of action and indications for use): textbook.- methodical manual/ SKGFA. - ; Approved by the Academic СоветЕОКГФАCouncil of the SCFA. - Almaty:Evero,2013. -138 p.

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1. Petrov, V. I. Clinical pharmacology and pharmacotherapy in real medical practice master class [Electronic resource]: textbook / V. I. Petrov. - Electron. tekstovye dan. (63,5 MB). - M.: Publishing group "GEOTAR-Media", 2011. - 880 p. e. opt. disk (CD-ROM).
- 2.. A doctor's consultant. Clinical pharmacology. Version 1.1 [Electronic resource]: manual. - Electron. ttextovye dan. (132 Mb). - Moscow: Publishing group "GEOTAR-Media", 2010. - e-opt. disk (CD-ROM).
3. Асқорыту ағзалары ауруларының фармакотерапиясы [Электронный ресурс] : оқулық / З. А. Керимбаева [т.б.]. - Электрон. ttextovye dan.(37.7 MB). - Shymkent : ОКМА, 2018. - 234 bet. e. wholesale disk (CD-ROM).
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5. Kalieva Sh. S., Simokhina N. A. Clinical pharmacology and rational pharmacotherapy volume 2 / Kalieva Sh. S., Simokhina N. A., 2020. - 289 p. <https://www.elib.kz/ru>
6. Kalieva Sh. S. Clinical pharmacology and rational pharmacotherapy in gastroenterology / Kalieva Sh. S., 2020. - 401 p. <https://www.elib.kz/ru>

1.Department: organization and management of pharmaceutical business

2. Level of education: master's degree scientific and pedagogical

3. Educational programme M142-Pharmacy

4. Course: 1

5. Name of the elective discipline: Good distribution practice

6. Number of credits:4 credits

7. Purpose: Formation and consolidation of undergraduates' sustainable skills, knowledge in the field of drug treatment in conjunction with good distribution practice to comply with the norms, rules and basic principles of pharmaceutical activity.

8. Discipline content: Distribution is an activity related to the purchase, storage, supply or export of medicines, with the exception of retail sales, carried out jointly with manufacturers or owners of registration certificates, importers, other distributors or jointly with business entities engaged in the retail sale of medicines. The subject of the study is the basics of good distribution practice of GDP, the organization of a rational process of promoting goods from manufacturers to consumers.

9. Tasks:

- build system knowledge of good distribution practices;
- to develop skills in working with the main provisions of international and national documents on pharmaceutical activities;
- teach graduate students to apply logistic approaches in the field of drug circulation

10. Rationale for the choice of discipline:

In modern conditions, it is not enough to develop a new effective drug, to establish its optimal price, it is still necessary to choose effective channels for the distribution of drugs from the place of manufacture to the places of their use at a specific time in order to meet the needs of the population and medical institutions in the provision of medicines. This activity is carried out in conjunction with the manufacturers or owners of the registration certificate, importers, other distributors or together with business entities engaged in the retail sale of drugs.

11.Learning outcomes

Knowledge (the cognitive sphere)	Skills (psychomotor sphere)	Personal and professional competences (relations)
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<p>demonstrates developing knowledge and understanding of regulatory and legal documents, logistics approaches in the field of drug circulation, principles of good distribution practice, requirements for pharmaceutical personnel, self-inspection procedures for carrying out activities in the field of drug circulation.</p>	<p>analyzes distribution channels of goods, factors of consumption of medicines and MD, information about suppliers, customers, applying methods for estimating logistics costs and ways to optimize them in the distribution system of goods;</p> <p>organizes the acceptance of goods from the supplier, storage of medicines and medical devices on the basis of compliance with all operational procedures and their documentation.</p> <p>taking measures to prevent falsification of medicines, medical devices;</p> <p>develops a unified approach to organizing the process of wholesale sales of medicines and medical devices, determining the turnover in pharmaceutical organizations, building models for managing stocks, material flows, justifying the use of the product life cycle in the promotion of medicines and medical devices, methods for determining, analyzing and assessing risks for quality.</p>	<p>possesses the skills of public speaking with the presentation of their own judgments, analysis and synthesis of information, building partnerships, trusting relationships with colleagues and healthcare workers, demonstrating multiculturalism and openness in work;</p> <p>engages in professional growth by demonstrating introspection skills, teaching experience at the higher education level, searching information in databases, organizing information and using it to solve specific professional problems based on research methods, developing ideas and developing critical thinking and writing skills scientific works.</p>
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12. Prerequisites: Organizational Framework for Good Practices in Pharmacy (GXP)

13.Postrequisites: Management in pharmaceutical logistics

14.Literature

Main:

1. Tiisti pharmaceutikalyk praktikalardi uyymdastyr zhane baskar negizderi : okulyk / K. D. Shertayeva , O. V. Blinova.-Zhasulan 2022
2. Shertaeva, K. D. Pharmaceutikalyk kyzmetti uyymdastyru [Matin] : okulyk / K. D. Shertaeva. G.I. Utegenova. Shymkent : [B. I.], 2021. - 228 bet
3. Organizational and managerial foundations of good practices: textbook / K. D. Shertayeva [et al.]. - Shymkent : [B. I.], 2022. - 180 p.
4. Management and economics of pharmacy [Text]: textbook / edited by I. A. Narkevich. - M.: GEOTAR - Media, 2021. - 928 p.
5. Arystanov, J. M. Pharmaciyanyn baskaryluy zhane ekonomikasy: okulyk / KR densaulyk aktau ministerligi; AstMUgyl. kenesi magilisinde shygaruga usyngan. - Almaty: Evero, 2013. - 452 bet
6. Arystanov, J. M. Management and economics of pharmacy textbook - Almaty: Evero, 2015.

Additional information:

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3. YUKMA Media Library <https://media.skma.edu.kz/>
4. Akpigress Digital Library www.aknurpress.kz register and enter the promo code SDH-28
5. ABOUT the Repositories <http://lib.ukma.kz/repository/>
6. Republikalyk zhogary oku oryndary aralyk elektrondyk kitaphana <http://rmebrk.kz/>
7. "Zan" normativtik-kukytkyktik aktiler bazasy <https://zan.kz/ru>
8. "Paragraph Medicine" akparattyk zhuyesi <https://online.zakon.kz/Medicine/>
9. Code of the Republic of Kazakhstan dated July 7, 2020 No. 360-VI "On the Health of the people and the healthcare system" (with amendments and additions). Chapter 2, Article 10; Chapter 5, paragraph 3; Chapter 27.28;
https://online.zakon.kz/document/?doc_id=34464437
10. Order of the Acting Minister of Health of the Republic of Kazakhstan dated February 4, 2021 No. KR DSM-15. "On the approval of good pharmaceutical practices"
<https://adilet.zan.kz/rus/docs/V2100022167#z13>
11. Order of the Minister of Health of the Republic of Kazakhstan dated February 16, 2021 No. KR DSM-19 "On approval of the rules for storage and transportation of medicines and medical devices"
<https://adilet.zan.kz/rus/docs/V2100022230#z7>
12. Order of the Minister of Health of the Republic of Kazakhstan dated September 17, 2020 No. KR DSM-104/2020 On Approval of the Rules for Wholesale and Retail sale of Medicines and Medical devices.
<https://adilet.zan.kz/rus/docs/V2000021229#z129>

1. Department of organization and management of pharmaceutical business

2. Level of education: master's degree scientific and pedagogical

3. Educational programme: M142 pharmacy

4. Course: 1

5. The name of the elective discipline: Human resources and financial management

6. Number of credits: 4 credits

7. Purpose: Formation of undergraduates knowledge in the field of financial management for decision-making to ensure the most efficient movement of financial resources between the pharmaceutical company and its sources of financing, mastering the skills and practical skills of effective personnel management of pharmaceutical organizations.

8. Content discipline: Management acts as a system of program-targeted management, planning, forecasting of scientific developments, organization of production, implementation of products and services based on innovations in order to increase economic efficiency, meet the needs of the market and society as a whole, and increase profits. Special attention is paid to the characteristics and use of the potential of financial management as the main tool for the development of a pharmaceutical enterprise

9. Tasks:

- to form knowledge about the principles, methods and functions of personnel management, mechanisms for building a personnel management system in a pharmaceutical organization;
- the formation of skills for the analysis and optimization of personnel management practices in pharmaceutical organizations;
- build knowledge on the theoretical foundations of financial management;
- give an idea of the financial environment of entrepreneurship, financial planning at enterprises and information support of financial management;
- develop risk assessment and financial decision-making skills.

10. Rationale for the choice of discipline:

The market is characterized by a constant desire to improve production efficiency, requires constant adjustments to the goals and planned programs of the company, depending on the state of the market. This requires a special management system that takes into account the priorities and specifics of Kazakhstan. It is impossible to achieve success in the market without effective and purposeful management of all processes, including in the financial field. Today, management acts as a system of program and target management, current and future planning, forecasting of scientific developments, organization of production, sales of products and services on the basis of constant innovations in order to improve the efficiency of management, meet the needs of the market and society as a whole, increase profits.

11. Learning outcomes

Knowledge (the cognitive sphere)	Skills (psychomotor sphere)	Personal and professional competences (relations)
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demonstrates knowledge and understanding of pharmaceutical business management methods, business management development trends in the national economy, and financial management mechanisms.	develops the overall and financial strategy of the organization, using the tools of strategic and financial management; owns the methods of making strategic, tactical and operational decisions in the personnel management of pharmaceutical organizations; analyzes the main directions and methods of personnel management, the influence of various factors on the business environment, the interaction of financial policy, the financial system and financial management, developing personnel management technologies.	possesses the skills of public speaking with the presentation of their own judgments, analysis and synthesis of information, building partnerships, trusting relationships with colleagues and healthcare workers, demonstrating multiculturalism and openness in work; engages in professional development by demonstrating introspective skills, teaching experience at the higher education level, searching information in databases, organizing information and using it to solve specific professional problems, using research methods, developing ideas, developing critical thinking and writing skills scientific works.
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12. Prerequisites: management and economics of pharmacy.

13. Postrequisites: management and marketing at pharmaceutical enterprises

14.Literature

Main:

1. Shertaeva , K. D. Pharmacy economics: okulyk; KR Densaulyk aktau zhane aleumettik damu Ministerligi. OKMFA. Shymkent : [B. I.], 2016. - 211b. p.
2. Arystanov, J. M. Pharmacy salasyndagi management negizderi [Matin]: practicum / J. M. Arystanov. - Almaty : New book, 2022. - 160 bet.
3. Arystanov, J. M. Pharmacy salasyndagi management zhane marketing [Matin]: oku kuraly / J. M. Arystanov. - Almaty : New book, 2022. - 204 bet.
4. Arystanov, J. M. Management and marketing in pharmacy: a textbook / J. M. Arystanov, A. T. Tokseitova. - Almaty: Evero, 2016. - 532 s
5. Shopabaeva, A. R. Accounting and reporting system in pharmacy organizations of the Republic of Kazakhstan [Matin] : textbook. the manual / A. R. Shopabaeva, A. S. Nemchenko, S. V. Khimenko. - Almaty : IP Publishing House "Aknur", 2014. - 72 p

Additional information:

1. Kazakhstan Republikasyndagi pharmaceutikalyk kyzmetti retteitin Zannamalyk zhane normativtik -kukykyk aktiler zhinagi: zhinak / kurast. B. K. Mahatov [t/B.]. - Shymkent : Zhasulan, 2017. - 327 bet. S
2. Collection of Legislative and regulatory legal acts regulating pharmaceutical activities in the Republic of Kazakhstan [Text]: collection / comp. B. K. Mahatov [et al.]. - Shymkent : Zhasulan, 2017. - 380 p
3. Shertaeva , K. D. Pharmacy economics [Matin] : okulyk / K. D. Shertaeva , G.I. Utegenova ; KR Densaulyk aktau zhane aleumettik damu Ministerligi. OKMFA. Shymkent : [B. I.], 2015. - 222b
4. Shertaeva , K. D. Organization of pharmaceutical activity [Text] : textbook / K. D. Shertaeva , G. I. Utegenova. Shymkent : [B. I.], 2021. - 202 bet

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15. UKMA Media Library <https://media.skma.edu.kz/>
16. Akpigrress Digital Library www.aknurpress.kz register and enter the promo code SDH-28

17. ABOUT the Repositories <http://lib.ukma.kz/repository/>
18. Republikalyk zhogary oku oryndary aralyk elektronnyk kitaphana <http://rmebrk.kz/>
19. "Zan" normativtik-kukykytk aktiler bazasy <https://zan.kz/ru>
20. "Paragraph Medicine" akparattyk zhuyesi <https://online.zakon.kz/Medicine/>
21. Code of the Republic of Kazakhstan dated July 7, 2020 No. 360-VI "On the Health of the people and the healthcare system" (with amendments and additions). Chapter 2, Article 10; Chapter 5, paragraph 3; Chapter 27.28;
https://online.zakon.kz/document/?doc_id=34464437
22. Order of the Minister of Health of the Republic of Kazakhstan No. KR DSM-305/2020 dated December 21, 2020 "On approval of the nomenclature of specialties and specializations in the field of healthcare, nomenclature and qualification characteristics of positions of healthcare workers".
<https://adilet.zan.kz/rus/docs/V2000021856>
23. Order of the Minister of Health of the Republic of Kazakhstan dated September 17, 2020 No. KR DSM-104/2020
On approval of the Rules for the wholesale and retail sale of medicines and medical devices.
<https://adilet.zan.kz/rus/docs/V2000021229#z129>
24. On Amendments to the Order of the Acting Minister of Health of the Republic of Kazakhstan dated April 19, 2019 No. KR DSM-42 "On Approval of the Rules for Regulating prices for medicines"
https://online.zakon.kz/document/?doc_id=34490056
25. Order of the Minister of Health of the Republic of Kazakhstan dated December 11, 2020 No. KR DSM-249/2020. On approval of the rules for assessing the knowledge and skills of students, assessing the professional readiness of graduates of educational programs in the field of healthcare and healthcare professionals <https://adilet.zan.kz/rus/docs/V2000021763>

1. Department of organization and management of pharmaceutical business

2. Level of education: master's degree scientific and pedagogical

3. Educational programme: M142 pharmacy

4. Course: 1

5. Name of elective discipline: Applied Pharmacoeconomics

6. Number of credits: 3 credits

7. Purpose: the Formation of undergraduates knowledge to determine the economic efficiency of specific treatment schemes, disease prevention to solve problems to ensure the rational use of medicines.

8. Content of the discipline: The objects of study of the discipline are the safety and effectiveness of medical interventions, as well as the economic costs of their implementation. The subject of the discipline is economic evaluation in the healthcare system and pharmacy for the analysis of alternative methods of treatment. The main objective of the discipline is to search for new approaches to optimization and rationalization of drug therapy and to conduct a scientifically based assessment of the effectiveness and cost characteristics of treatment.

9. Tasks:

- form an understanding of the methods for analyzing the effectiveness and quality of the use of drugs in the treatment of specific diseases;
- teach to scientifically substantiate the choice of drugs;
- develop skills in developing interrelated assessments of quality indicators and economic characteristics.

10. Rationale for the choice of discipline:

The constantly increasing range of medicines on the pharmaceutical market and the limited funds allocated by the state for health care have necessitated the rational distribution of medicines. In this regard, along with information on the therapeutic efficacy and safety of drugs, the main

treatment regimens for common diseases require knowledge and, in economic evaluation, drug therapy, which provides the discipline "Pharmacoeconomics".

11. Learning outcomes

Knowledge (cognitive sphere)	Skills (psychomotor sphere)	Personal and professional competences (relations)
demonstrates developing knowledge and understanding of the distinctive features of pharmacoeconomics, the problems of increasing costs for the provision of medical and pharmaceutical care; a systematic approach to the analysis and critical perception of medical information and innovations; stages of evaluation of the therapeutic efficacy of a medicinal product	analyzes the sources of information, the main factors affecting the cost of treatment, the cost structure in pharmacoeconomics, conducting a retrospective analysis of the results of clinical trials; makes a choice of methods of clinical and economic research, applying the methods of pharmacoeconomic and pharmacoepidemiological analyzes in scientific research, using the methodology of studying the actual consumption of medicines based on the established daily dose; develops approaches to the use of biostatistics and modeling methods in conducting pharmacoeconomic studies, the main parameters for evaluating drugs and treatment methods.	possesses the skills of public speaking with the presentation of their own judgments, analysis and synthesis of information, building partnerships, trusting relationships with colleagues and healthcare workers, demonstrating multiculturalism and openness in work; engages in professional growth by demonstrating self-reflection skills, teaching experience at the tertiary level, searching for information, using systematic review, meta-analysis, Cochrane systematic reviews to solve specific professional problems, developing ideas and developing critical thinking and skills in scientific writing .

12. Prerequisites: management and economics of pharmacy, pharmacology, pharmacotherapy.

13. Postrequisites: management in pharmaceutical logistics

14. Literature

Main:

1. Management and economics of pharmacy [Text]: textbook / edited by I. A. Narkevich. - M.: GEOTAR - Media, 2017. - 928 p.
2. Shertaeva, K. D. Pharmacoeconomics of negizderi: okulyk / K. D. Shertaeva, J. K. Shimirova, O. V. Blinova; K. aleumettik damu zhane densaulyk aktau ministerligi. OKMFA. Shymkent : OKMFA, 2015. - 136 bet s
3. Shertaeva, K. D. Fundamentals of pharmacoeconomics: textbook / K. D. Shertaeva, O. V. Blinova, Zh. K. Shimirova ; Ministry of Health and Social Development of the Republic of Kazakhstan. UCGFA. Shymkent : YUKGFA, 2015. - 143 p.
4. Arystanov, J. M. Pharmaceutikalyk kyzmetti uyymdastyr negizderi [Matin]: oku kuraly / J. M. Arystanov. - Almaty : New book, 2022. - 256 bet.

Additional information:

1. Pharmacoeconomics: oku kuraly / A. R. Shopabayeva [railway]. - Almaty : AKNUR, 2019. - 194 bet. S
2. Shopabaeva, A. R. Pharmacoeconomics: a textbook / A. R. Shopabaeva, N. A. Chebotarenko, S. V. Khimenko; Ministry of Health and Social Development of the Republic of Kazakhstan. - Karaganda: AKNUR, 2016. - 146 p.
3. "Pharmacoeconomics of negizderi" pani boyynsha daris kesheni. Mamandyk: 5B110300- "Pharmacy" [Text] = Abstracts of lectures on the discipline "Fundamentals of

pharmacoeconomics". Specialty: 5B110300-"Pharmacy" : lectiyalar thesis / KRDSM SHZHK RMK; OKMFA; Pharmacy isin uyymdastyr zhane baskar kaf. - Shymkent : B. zh., 2013. - 44 bet. Electronic resource

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4. Akpigress Digital Library www.aknurpress.kz register and enter the promo code SDH-28
5. ABOUT the Repositories <http://lib.ukma.kz/repository/>
6. Republikalyk zhogary oku oryndary aralyk elektronnyk kitaphana <http://rmebrk.kz/>
7. "Zan" normativtik-kukykyk aktiler bazasy <https://zan.kz/ru>
8. "Paragraph Medicine" akparattyk zhuyesi <https://online.zakon.kz/Medicine/>
9. Code of the Republic of Kazakhstan dated July 7, 2020 No. 360-VI "On the Health of the people and the healthcare system" (with amendments and additions). Chapter 2, Article 10; Chapter 5, paragraph 3; Chapter 27.28;
https://online.zakon.kz/document/?doc_id=34464437
10. Order of the Acting Minister of Health of the Republic of Kazakhstan dated February 4, 2021 No. KR DSM-15. "On the approval of good pharmaceutical practices"
<https://adilet.zan.kz/rus/docs/V2100022167#z13>
11. Order of the Minister of Health of the Republic of Kazakhstan dated December 8, 2017 No. 931 as amended by Order dated 04/21/2020 No. KR DSM-40/2020 On Approval of the Kazakhstan National Drug Form

1. Department of organization and management of pharmaceutical business

2. Level of education: master's degree scientific and pedagogical

3. Educational programme: M142 -pharmacy

4. Course: 2

5. The name of the elective discipline: Management in pharmaceutical logistics

6. Number of credits:4 credits

7. Purpose: formation of undergraduates ' system knowledge and understanding of the conceptual foundations of logistics and the acquisition of skills in modern methods of management of material and other flows in modern conditions.

8.The content of the discipline: One of the new directions in the management strategy is the use of effective logistics systems at various levels of pharmaceutical organizations. The subject of management in pharmaceutical logistics are all processes associated with changing the parameters of placement, timing, movement, form of flows in the logistics chain (pharmaceutical company - distributor - pharmacy).

9. Tasks:

-acquisition of deep theoretical knowledge on the concept, strategy and tactics of logistics by undergraduates;

-master's degree students mastering methodological tools for development and implementation of logistics tasks;

- mastering the skills of logical thinking and development of proposals for improvement of logistics systems and mechanisms of their functioning;

-acquisition of skills to assess the economic efficiency and consequences of the implementation of logistics solutions;

-to teach undergraduates to apply logistics approaches in the field of circulation of medicines.

10.Rationale for the choice of discipline:

In the field of circulation of medicines, it is possible to identify the way of movement of pharmaceutical products, ranging from the production of raw materials, substances or cultivation of medicinal plants to the purchase of a drug by the end user. Logistics is a part of economic science and the field of activity, the subject of which is to organize a rational process of promotion of

goods and services from producers to consumers, the functioning of the sphere of circulation of products, goods and services, inventory management, creating an infrastructure for commodity circulation. From the position of the organization's management, logistics can be considered as a strategic management of material flows in the process of procurement, supply, transportation, sale and storage of raw materials and finished goods. Pharmaceutical logistics is one of the most complex, from procurement logistics to distribution logistics.

11. Learning outcomes

Knowledge (the cognitive sphere)	Skills (psychomotor sphere)	Personal and professional competences (relations)
demonstrates developing knowledge and understanding of the population drug supply management system in the Republic of Kazakhstan, methods for analyzing the assortment and distribution of pharmaceutical products, and logistical approaches to managing material flows.	develops methodological tools for the implementation of logistics tasks, organizing all types of logistics activities in the field of drug circulation; owns the methods of making strategic, tactical and operational decisions in the management of material flows of pharmaceutical organizations; analyzes the integrative qualities of logistics systems, logistics costs, information flow model, information elements that create the basis for information control, prices and transportation costs, needs and calculations of the quantity of purchased medicines, intermediaries in distribution channels, inventory structure.	owns the skills of public speaking with the presentation of their own judgments, analysis and synthesis of information, building partnerships, trusting relationships with colleagues and healthcare workers. demonstrating multiculturalism and openness in work; engages in professional growth by demonstrating introspective skills, teaching experience at the higher education level, systematizing information and using it to solve specific professional problems, developing ideas and developing critical thinking and writing skills in scientific writing.

12. Prerequisites: Good Distribution Practice.

13. Postrequisites: professional activity

14. Literature

Main:

1. Management and economics of pharmacy [Text]: textbook / ed. I. A. Narkevich. - M. : GEOTAR - Media, 2017. - 928 p.
2. Arystanov, Zh. M. Management and economics of pharmacy textbook - Almaty: Evero, 2015
3. Management and economics of pharmacy: textbook / ed. V. L. Bagirova. - M., 2008

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1. Murphy, P.R. Modern logistics: textbook / P.R. Murphy, A.M. Knemeyer; English language. aud. I. Baymuratova, K.M. Torekhanova. - 11th head. - Almaty: Davir, 2017. - 176 p.s
2. Entrepreneurship organization: textbook / K.N. Orazbaeva [y.p.]. - Atyrau Oil and Gas Ing. recommended by the council. - Almaty: Evero, 2010. - 204 pages.

Electronic resource

1. EMCD is posted on the educational portal ukma.kz
2. Electronic library "Student consultant". Access link: <http://www.studmedlib.ru>, LOGIN ibragim123, PASSWORD Libukma123

3. Website of the Library and Information Center of the Academy lib.ukma.kz
4. SKMA Media Library <https://media.skma.edu.kz/>
5. Digital library "Aknurpress" www.agnurpress.kz register and enter the promo code SDH-28
6. SKMA Repository <http://lib.ukma.kz/repository/>
7. Electronic library of republican higher educational institutions <http://rmebrk.kz/>
8. Database of legal acts "Zan" <https://zan.kz/ru>
9. "Paragraph Medicine" information system <https://online.zakon.kz/Medicine/>
10. Code of the Republic of Kazakhstan dated July 7, 2020 No. 360-VI "On the health of the people and the healthcare system" (with amendments and additions). Ch. 2, art. 10; ch. 5, paragraph 3; ch. 27.28;
https://online.zakon.kz/document/?doc_id=34464437
11. Order acting Minister of Health of the Republic of Kazakhstan dated February 4, 2021 No. ҚРДЦМ-15. "On Approval of Good Pharmaceutical Practices"
<https://adilet.zan.kz/rus/docs/V2100022167#z13>
12. Order of the Minister of Health of the Republic of Kazakhstan dated February 16, 2021 No. KR DSM-19 "On approval of the rules for the storage and transportation of medicines and medical devices"
<https://adilet.zan.kz/rus/docs/V2100022230#z7>
13. Order of the Minister of Health of the Republic of Kazakhstan dated September 17, 2020 No. ҚРДЦМ-104/2020
14. On approval of the Rules for the wholesale and retail sale of medicines and medical devices.
<https://adilet.zan.kz/rus/docs/V2000021229#z129>
15. About making changes to the order. Minister of Health of the Republic of Kazakhstan dated April 19, 2019 No. KR DSM-42 "On approval of the Rules for regulating prices for medicines"
https://online.zakon.kz/document/?doc_id=34490056

1. Department of organization and management of pharmaceutical business

2. Level of education: master's degree scientific and pedagogical

3. Educational programme: M142 -pharmacy

4. Course: 2

5. Name of elective discipline: Management consulting

6. Number of credits: 4 credits

7. Purpose: formation of knowledge, skills and abilities of undergraduates in the organization of management consulting the use of specific tools and methods to ensure optimal results of consulting services in the organizational diagnosis of pharmaceutical organizations.

8. The content of the discipline: The head of the enterprise expects the consultant to receive expert opinions on specific solutions or situations, discuss their problems and the opportunity to learn from the consultant certain professional knowledge and skills. Management consulting includes the field of activity in transferring the experience of successful leaders to young employees, in training specialists in conducting research work on the problems of the functioning and development of organizations.

9. Tasks:

- provide systemic knowledge and develop skills in the application of specific tools, methods of organizing management consulting in organizational diagnostics of pharmaceutical organizations.
- to develop skills in organizing and conducting professional and managerial consulting in the management of pharmaceutical personnel and in applying tools and methods for organizing management consulting and organizational diagnostics of pharmaceutical organizations.

10. Rationale for the choice of discipline:

Management consulting, as a discipline, includes a very important and rapidly developing field of activity to transfer the experience of successful managers to young employees, in training specialists in conducting research on the functioning and development of organizations. The

condition for the success of the development of modern pharmaceutical business is the ability to outpace the needs of the market of pharmaceutical products and services. In these circumstances, the need for management consulting increases, especially when the management capacity of a pharmaceutical organization is insufficient to solve the existing problems.

11. Learning outcomes

Knowledge (the cognitive sphere)	Skills (psychomotor sphere)	Personal and professional competences (relations)
demonstrates developing knowledge and understanding of the system of management methods, forms of agreements, consulting process, specific tools of management consulting services for carrying out activities in the field of drug circulation.	conducts organizational diagnostics of a pharmaceutical enterprise using modern methods of analysis, collecting and processing information using computer technology; owns the methods of consulting, defining the criteria for the effectiveness of the work of a consulting organization; uses the matrix of organizational problems to identify the strengths and weaknesses of the organization, analyzing the organization's problems, test results, developing the contract structure, consulting model, methodological tools, business games and trainings.	owns the skills of public speaking with the presentation of their own judgments, analysis and synthesis of information, building partnerships, trusting relationships with colleagues and healthcare workers. demonstrating multiculturalism and openness in work; engages in professional growth by demonstrating introspective skills, teaching experience at the higher education level, systematizing information and using it to solve specific professional problems, developing ideas and developing critical thinking and writing skills in scientific writing.

12. Prerequisites: management and marketing at pharmaceutical enterprises, personnel and financial management.

13. Postrequisites: professional activity.

Main page:

1. Management and economics of pharmacy [Text]: textbook / ed. by I. A. Narkevich. - Moscow: GEOTAR-Media, 2017. - 928 p.
2. Arystanov, Zh. M. Management and economics of pharmacy textbook-Almaty: Evero, 2015.g.
3. Шертаева, К. Д. Фармацевтикалық кеңес: оқу құралы / К. Д. Шертаева, К. Ж. Мамытбаева, Ғ. Ж. Умурзахова ; ҚР Денсаулық сақтау министрлігі; ОҚМФА. - Шымкент : Жасұлан, 2013. - 96 бет.
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5. Arystanov Zh.M., Akhelova Sh. L., Zulpykharova A. T. Upravlenie i ekonomika pharmatsii s osnovami menedzhmenta i marketing [Management and economics of pharmacy with the basics of management and marketing]. - Karaganda:MedetGroup, 2021. - 590с

Additional information:

1. Collection of Legislative and regulatory acts regulating pharmaceutical activity in the Republic of Kazakhstan: collection / compiled by B. K. Makhatov [et al.]. - Shymkent: Zhasulan, 2017. - 380 p.
2. Arystanov, Zh.M. Management and marketing in pharmacy: textbook / Zh. M. Arystanov, A. T. Tokseitova. - Almaty:Evero, 2016. - 532 p.
3. Ospanova, Zh. B. Psikhologiya upravleniya [Psychology of management]. manuals / Zh. B. Ospanova. - ; Approved by I rec. to the ed. Learned. Council of KSMU. - Almaty :Evero, 2014. - 160 pages
4. Shertayeva K. D., Mamytbayeva K. Zh., Zhanbyrbayeva A.D. Personnel Management : textbook / K. D. Shertayeva, K. J. Mamytbayeva, A.D. Zhanbyrbayeva. Shymkent : SKMA Publ., 2018, 140 p. (in Russian)
5. Nurgazina, Zh. K. Managerial accounting [Text]: textbook / Zh.K. Nurgazina ; Ministry of Education and Science of the Republic of Kazakhstan. - ; approved by Rep. of the Scientific and Practical Center of the Ministry of Education and Science of the Republic of Kazakhstan. Almaty : BOOKPRINT LLP, 2014, 411 p. (in Russian)

Қазақстан Республикасындағы фармацевтикалық қызметті реттейтін Заңнамалық және нормативтік -құқықтық актілер жинағы: жинақ / құраст. Б. Қ. Махатов [т/б.]. - ШЫМКЕНТ : Жасұлан, 2017. - 327 бет.

Electronic resource

1. UMKD is available on the educational portal ukma.kz.kz
2. Website of the Library and Information Center of the Academy lib.ukma.kz
3. SKMA Media Library <https://media.skma.edu.kz/>
4. Akpigress Digital Library www.aknurpress.kz register and enter the promo code SDH-28
5. ОҚМА Репозиторийі <http://lib.ukma.kz/repository/>
6. Республикалық жоғары оқу орындары аралық электронды қкітапхана <http://rmebrk.kz/>
7. «Заң» нормативтік-құқықтық актілербазасы <https://zan.kz/ru>
8. «Параграф Медицина» ақпараттық жүйесі <https://online.zakon.kz/Medicine/>
9. Code of the Republic of Kazakhstan dated July 7, 2020 No. 360-VI "On the health of the people and the health care system" (with amendments and additions). Chapter 2, Article 10; Chapter 5, paragraph 3; chapters 27, 28;
https://online.zakon.kz/document/?doc_id=34464437

1. Department of organization and management of pharmaceutical business

2. Level of education: master's degree scientific and pedagogical

3.Educational programme: M142-pharmacy

4. Course: 2

5. Name of elective discipline: Management in pharmaceutical logistics

6. Number of credits: 4 credits

7. Purpose: Formation and consolidation of undergraduate's in-depth knowledge and skills necessary for effective professional communication with patients and colleagues in various situations; training of qualified managers who are able to make effective decisions in the field of organizational behavior management.

8.The content of the discipline: One of the new directions in the management strategy is the use of effective logistics systems at various levels of pharmaceutical organizations. The subject of management in pharmaceutical logistics is all processes related to changes in the parameters of placement, timing, movement, form of flows in the logistics chain (pharmaceutical company - distributor - pharmacy).

9. Tasks:

- to form knowledge on the basic theories of human behavior in an organization;
- give an idea of the life stages and cycles of organizations;
- to form systemic knowledge according to the principles of building organizational structures;
- master the basic principles of behavior management in the organization;

- give an idea of the psychology of relationships in the organization;
- study the personality characteristics of leaders and basic leadership theories;
- form an idea of staff motivation in the framework of organizational behavior;
- provide systemic knowledge on innovation management in the organization.

10. Rationale for the choice of discipline:

In the field of circulation of medicines, it is possible to identify the path of movement of pharmaceutical goods, starting from the receipt of raw materials, substances or cultivation of medicinal plants to the purchase of a medicinal product by the end user. Logistics is a part of economics and a field of activity, the subject of which is the organization of a rational process of promoting goods and services from producers to consumers, the functioning of the sphere of circulation of products, goods and services, inventory management, and the creation of a commodity distribution infrastructure. From the point of view of the organization's management, logistics can be considered as strategic management of material flows in the process of procurement, supply, transportation, sale and storage of raw materials and finished goods. Pharmaceutical logistics is one of the most complex, from procurement logistics to distribution logistics.

11. Learning outcomes

Knowledge (cognitive sphere)	Skills (psychomotor sphere)	Personal and professional competences (relations)
demonstrates developing knowledge and understanding of the basic principles of communication and the communicative process, the theory of human behavior in an organization, models of the motivational process, models of the life cycle of an organization, types of organizational management structures, strategic planning.	analyzes interpersonal, group and organizational communications, organization development models and corporate culture models, factors influencing the organizational management structure (OMS), non-verbal behavior, informal relations in pharmacy organizations; owns the methods of personality research and methods of making effective decisions in the field of organizational behavior management, evaluating the consequences of organizational and managerial decisions.	searches for information in databases, systematizing, analyzing information and using it to solve specific professional problems and when writing scientific papers; possesses the skills of public speaking with the presentation of their own judgments, using organization management tools, the methodology of psychological research for effective communication of a pharmacist with pharmacy patients, colleagues, healthcare workers; engages in professional growth by demonstrating introspective skills, teaching experience at the higher education level.

12. Prerequisites: management and marketing at pharmaceutical enterprises.

13. Postrequisites: professional activity.

14. Literature

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1. Shertaeva K.D., Mamytbaeva K.Zh., Zhanbyrbaeva A.D. Pharmaceutikalyk logistics: okulyk.- Shymkent. Zhasulan – 2022. – 160 b.
2. Shertaeva K.D., Mamytbaeva K.J., Zhanbyrbaeva A.D. Pharmaceutical logistics: textbook. - Shymkent. Zhasulan – 2022. – 156 p.
3. Management and economics of pharmacy: textbook / edited by I. A. Narkevich. - M. : GEOTAR - Media, 2017. - 928s.
4. Arystanov, J. M. Management and economics of pharmacy textbook - Almaty :Evero, 2015

5. Blinova, O. V. Pharmaceutical management: textbook / O. V. Blinova ; Ministry of Health of the Republic of Kazakhstan; UCGFA. Shymkent : Zhasulan, 2013. - 165 s
6. Shertaeva, K. D. Pharmaceutikalyk marketing [Matin] : okulyk / K. D. Shertaeva, K. J. Mamytbaeva ; KR densaulyksaktauzhaneleumettik damu ministerligi. OKMFA. Shymkent : [B. I.], 2016. 152 B. S.

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1. Murphy, P. R. Zamanauy logistics: okulyk / P. R. Murphy, A.M. Knemeyer ; agylshyn til. aud. I. Baymuratova, K. M. Torekhanova. - 11-bass. - Almaty :Daur, 2017. - 176 bps
2. Daris kesheni "Pharmaceutical logistics" pani boyynsha [Matin] : daris kesheni = Lecture complex on the discipline -"Pharmaceutical logistics" : lecture complex / Pharmacy of the isin uymdastyr zhane baskar department. Shymkent : OKMFA, 2015. - 82 bet
3. Daris kesheni- Zavodishilik kubyrlы zhyelerdi zhane materialdards tasymaldauga arnalgan kural- zhabdyktards zhobalau pani boyynsha [Matin] : daris kesheni / pharmactik ondiristin technologiyyasi departments. Shymkent : OKMFA, 2016. - 52 bet.
4. Medical and pharmaceutical commodity science [Text] : textbook / ed. by I. A. Narkevich. - M. : GEOTAR - Media, 2019. - 528 p. : ill.

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3. YUKMA Media Library <https://media.skma.edu.kz/>
4. Akpigress Digital Library www.aknurpress.kz register and enter the promo code SDH-28
5. ABOUT the Repositories <http://lib.ukma.kz/repository/>
6. Republikalyk zhogary oku oryndary aralyk elektrondyk kitaphana <http://rmebrk.kz/>
7. "Zan" normativtik-kukykytk aktiler bazasy <https://zan.kz/ru>
8. "Paragraph Medicine" akparattyk zhuyesi <https://online.zakon.kz/Medicine/>
9. Code of the Republic of Kazakhstan dated July 7, 2020 No. 360-VI "On the Health of the people and the healthcare system" (with amendments and additions). Chapter 2, Article 10; Chapter 5, paragraph 3; Chapter 27.28;
https://online.zakon.kz/document/?doc_id=34464437
10. Order of the Acting Minister of Health of the Republic of Kazakhstan dated February 4, 2021 No. KR DSM-15. "On the approval of good pharmaceutical practices"
<https://adilet.zan.kz/rus/docs/V2100022167#z13>
11. Order of the Minister of Health of the Republic of Kazakhstan dated February 16, 2021 No. KR DSM-19 "On approval of the rules for storage and transportation of medicines and medical devices"
<https://adilet.zan.kz/rus/docs/V2100022230#z7>
12. Order of the Minister of Health of the Republic of Kazakhstan dated September 17, 2020 No. KR DSM-104/2020 On Approval of the Rules for Wholesale and Retail sale of Medicines and Medical devices.
<https://adilet.zan.kz/rus/docs/V2000021229#z129>
13. On Amendments to the Order of the Acting Minister of Health of the Republic of Kazakhstan dated April 19, 2019 No. KR DSM-42 "On Approval of the Rules for Regulating prices for medicines"
https://online.zakon.kz/document/?doc_id=34490056

1. Department of Organization and Management of Pharmaceutical Business

2. Level of training: Master's degree in Science and Education

3. Educational program: M142 "Pharmacy"

4. Course: 2

5. Name of elective discipline: Professional, leader and organizer in pharmacy

6. Number of credits: 4 credits

7. Objective: to develop the knowledge, skills and abilities necessary for effective professional communication with patients and colleagues in various situations; to train qualified managers capable of making effective decisions.

8. Content of the discipline: Modern requirements for a specialist are based on a competency-based approach that considers their involvement in the main areas of professional activity, the development of leadership qualities and communication skills. The object is the processes occurring in professional activity and aimed at ensuring effective interaction of a specialist with the external and internal environment, self-development, and effective decision-making.

9. Tasks:

- to form knowledge on the main theories of human behavior in the organization;
- give an idea of the life stages and cycles of organizations.
- to form system knowledge on the principles of building organizational structures;
- master the basic principles of behavior management in the organization.
- give an idea of the psychology of relationships in the organization.
- to study the personal characteristics of leaders and the main theories of leadership;
- to form an idea of staff motivation within the framework of organizational behavior;
- provide system knowledge on managing innovations in the organization.

10. Justification of the choice of discipline:

A stable organizational culture and strong management staff of the company create a competitive advantage over other firms, which brings additional profit.

11. Learning outcomes (competencies)

Knowledge (cognitive sphere)	Skills and abilities (psychomotor sphere)	Personal and professional competencies (relationships)
demonstrate developing knowledge and understanding of the basic principles of communication and the communication process, the theory of human behavior in an organization, models of the motivational process, models of the organization's life cycle, types of organizational management structures, and strategic planning.	analyzes interpersonal, group and organizational communications, organizational development models and corporate culture models, factors influencing the organizational management structure in (OSM), nonverbal behavior, informal relationships in pharmacy organizations; owns methods of personality research and methods of making effective decisions in the field of organizational behavior management, assessing the consequences of organizational and managerial decisions made.	conducts information search in databases, systematizing, analyzing information and using it to solve specific professional tasks and when writing scientific papers; has the skills of public speaking with the presentation of their own judgments, using the tools of organization management, the methodology of psychological research for effective communication of the pharmacist with pharmacy patients, colleagues, health care workers; is engaged in professional growth, demonstrating introspection skills, teaching experience at the higher education level.

12. Prerequisites: management and marketing at pharmaceutical enterprises.

13. Post-requirements: professional activity.

14. Literature

Main page:

1. Asimova, T. A. Bioethics: textbook. - Алматы: АҚНҰР, 2017. - 240 с
2. Шертаева, К. Д. Қызметкерлерді басқару [Мәтін] : оқу құралы / К. Д. Шертаева, К. Ж. Мамытбаева, А. Д. Жамбырбаева. - Шымкент : ОҚМА, 2018. - 140 бет

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4. Датхаев, У. М. Коммуникативтік дағдылар: оқулық / - Алматы : Эверо, 2016. - 260 бет. С.
5. Molotov-Luchansky, V. B. Communication skills : textbook. stipend. Алматы : Evero Publ., 2014, 138 p. (in Russian)
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7. Уркунчиев, Е.М. Өндірістік менеджмент [Мәтін]: оқуқұралы / Е. М. Уркунчиев, А. М. Жусанбаев; ҚР БҒМ; М. Х. ДулатиатындағыТараз мемл. ун-ті. -; Баспаға М. Х. ДулатиатындағыТараз мемл. ун-ті Ғылыми кеңесі ұсынған. Алматы: Evero Publ., 2013, 160 бет. S
8. Роббинс, С. П. Ұйымдық мінез-құлық негіздері [Text] = Essentials of organizational behavior: okulyk / S. P. Robbins, T. A. Judge; Kaz. тіл ауд. Е. Қашқынова [және т.б.]. - 14-ші бас. - Алматы : Ұлттық аударма бюросы, 2019. - 488 бет
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2. Arystanov, Zh. M. Management and economics of pharmacy: textbook / Zh.M. Arystanov. Алматы: Evero Publ., 2015, 728 pp.
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2. SKMA Media Library <https://media.skma.edu.kz/>
3. Aknurpress Digital Library www.aknurpress.kz register and enter the promo code SDH-28
4. ОҚМА Репозиторийі <http://lib.ukma.kz/repository/>
5. Республикалық жоғары оқу орындары аралық электрондық кітапхана <http://rmebrk.kz/>
6. «Зан» нормативтік-құқықтық актілер базасы <https://zan.kz/ru>
7. «Параграф Медицина» ақпараттық жүйесі <https://online.zakon.kz/Medicine/>
8. Codex of the Republic of Kazakhstan dated July 7, 2020 No. 360-VI "On the health of the people and the health care system" (with amendments and additions). Chapter 2, Article 10; Chapter 5, paragraph 3; chapters 27, 28;
https://online.zakon.kz/document/?doc_id=34464437

1. The department of Pharmacognosy

2. Level of training (magistracy)

3. Educational program: 7M10142 «Pharmacy»

4. Course: 2 (scientifically-pedagogical direction)

5. Name of elective discipline: «Features of pharmacopoeial analysis of medicinal plant raw materials»

6. Amount of credits: 4

7. Purposes: Acquaintance of undergraduates with herbs which are applied in traditional medicine, the organization of preparations of medicinal plant raw materials, the chemical composition and classification of herbs, bases of rational environmental management, methods of procuring process of medicinal plant raw materials and its standardization and also with the main directions of scientific research in the field of studying of herbs.

8. Tasks:

- study the ND regulating quality control of herbal medicines;
- carrying out phytochemical and commodity analysis of medicinal plant materials.

9. Justification of the choice of discipline:

Features of pharmacopoeial analysis of medicinal plant materials have a special place in the system of training specialists with pharmaceutical education. Some of these remedies, after testing them in clinics, have found application in modern medicine and those obtained from medicinal plants occupy an important place.

Taking into account the increased requirements of practical pharmacy and medicine for the use of medicinal raw materials, the discipline "Features of pharmacopoeial analysis of medicinal plant raw materials" examines a range of issues related to the procurement of medicinal plant raw materials, rational and careful attitude to medicinal plant resources, sources of raw materials of mineral and animal origin, processing of plant raw materials and their use in medicine.

10. Results of training (competence):

Knowledge (cognitive sphere)	Skills (psychomotor sphere)	Personal and professional competences (relations)
<ul style="list-style-type: none"> - Shows knowledge of the basic concepts of herbs in traditional medicine, a subject and its value for practical activities of the expert of pharmacy - Knows difference between botanical, pharmacognostic and merchandising characteristic of plants. - Considering the increased requirements of practical pharmacy and medicine to use of medicinal raw materials in traditional medicine, the subject "Herbs in Traditional Medicine" considers a circle of the questions connected with preparation of medicinal plant raw materials, rational and careful attitude to resources of herbs, sources of raw materials of mineral and animal origin, processing of plant raw materials and their application in medicine. - Shows knowledge of herbs in traditional medicine takes special place in the system of training of specialists with pharmaceutical education after the higher education as traditional medicine and national remedies always drew attention of doctors and researchers. - Some of such means after test them in clinics found 	<ul style="list-style-type: none"> - Shows knowledge of the legislation of RK in the field of health care, the international standards, their structure and other specifications and technical documentation regulating quality, rules of preparation, acceptance, the requirement to terms and storage conditions of medicinal plant raw materials, a basis of a legal system of Kazakhstan, etc. - Carries out search and information processing about medicinal plant raw materials for consultation of doctors, druggists, the population concerning their preparation, application and storage; - Imparts to students own knowledge and abilities of work with information (educational, help, scientific) in the field of standardization of herbs 	<ul style="list-style-type: none"> - Shows knowledge of the legislation of RK in the field of health care, the international standards, their structure and other specifications and technical documentation regulating quality, rules of preparation, acceptance, the requirement to terms and storage conditions of medicinal plant raw materials, a basis of a legal system of Kazakhstan, etc. - Carries out search and information processing about medicinal plant raw materials for consultation of doctors, druggists, the population concerning their preparation, application and storage; - Imparts to students own knowledge and abilities of work with information (educational, help, scientific) in the field of standardization of medicinal plant raw materials and the packed-up products

<p>application in modern medicine and received from herbs take the important place.</p> <p>- Knows the BAS main groups of natural origin and their physical and chemical properties, the main ways of biosynthesis, methods of allocation, cleaning, the qualitative and quantitative analysis of active ingredients of medicinal plant raw materials</p>		
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11. Prerequisites: bachelor degree

12. Post-details: doctorate

13. Literature

The main:

6. Контроль качества и стандартизация лекарственных средств [Текст] : учебное пособие / под ред. Г. В. Раменской. - ; М-во образования и науки РФ. Рек. ФГАУ "Фед. ин-т развития образования". - М. : ГЭОТАР - Медиа, 2018. - 352 с
7. Қазақстан Республикасының Мемлекеттік фармакопеясы. Т. 3. – Алматы: «Жібек жолы» баспа үйі, 2014. – 864 бет
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9. Фармакопея США. Национальный формуляр: избранные обновления и все новые материалы с USP 29 - NF 24 по USP 33 - NF28 включительно: пер. с англ. - М. : ГЭОТАР - Медиа, 2012. - 888 с
10. Гаврилов, А. С. Фармацевтическая технология. Изготовление лекарственных препаратов: учебник. - 2-е изд., перераб. ; Мин-во образования и науки РФ. Рек. ГБОУ ВПО "Первый Мос. гос. мед. ун-т им. И. М. Сеченова". - М. : ГЭОТАР - Медиа, 2016. - 760 с.

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4. Кузьменко, А. Н. Стандартизация лекарственного растительного сырья и растительных сборов методами ионо- эксклюзионной и газо- жидкостной хроматографии [Текст] : монография / А. Н. Кузьменко, В. Ю. Решетняк. - Алматы : Эверо, 2017. - 120 с
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6. Келімханова, С. Е. Дәрілік өсімдік шикізатының фитохимиялық және тауарлық талдауы [Мәтін] : мед. жоғары оқу орнының фарм. фак. мен фарм. колледждерінің студенттеріне арналған оқу құралы / ҚР денсаулық сақтау министрлігі; С. Ж. Асфендияров атындағы ҚазҰМУ. - Қарағанды : ЖК "Ақнұр", 2014. - 186 бет.

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4. Сағындықова, Б. А. Дәрілердің дәріханалық технологиясы [Электронный ресурс] : оқулық / Б. А. Сағындықова, Р. М. Анарбаева. - Электрон. текстовые дан.(6,01МБ). - Шымкент : ОҚМА, 2018. - 512 бет. эл. опт. диск (CD-ROM). - 00. Тг.
5. Контроль качества и стандартизация лекарственных средств [Электронный ресурс] : методическое пособие / под ред. Раменской Г. В., Ордабаевой С. К. - ; ГБОУ ВПО "Первый МГМУ им И. М. Сеченова". РГП на ПХВ "ЮКГФА". - Электрон. текстовые дан. (4.91Мб). - Шымкент : ЮКГФА, 2015. - 285 о+эл. опт. диск (CD-ROM).
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1. **The department of Pharmacognosy**
2. **Level of training (magistracy)**
3. **Educational program: 7M10142 «Pharmacy»**
4. **Course: 1 (scientifically-pedagogical direction)**
5. **Name of elective discipline: «Phytochemical analysis of medicinal raw materials of plant and animal origin»**
6. **Amount of credits: 4**
7. **Purposes:** formation of master's students' skills and practical skills on issues of phytochemical analysis and standardization of medicinal plant raw materials, which are based on theoretical information on individual groups of biologically active substances, including their definition, classification, physicochemical properties, methods of production, purification and separation, methods of identification, qualitative and quantification, using rational and modern research methods.
8. **Tasks:**
 - organize the procurement of medicinal plant raw materials, taking into account the rational use of medicinal plant resources;
 - carrying out phytochemical analyzes of medicines using chemical, biological, physicochemical and other methods.
9. **Justification of the choice of discipline:**
Phytochemical analysis of medicinal raw materials of plant and animal origin has a primary place in the system of training specialists with pharmaceutical education after higher education. Phytochemical analysis is used to qualitatively and quantitatively determine the presence of active substances using chemical and phytochemical methods.
10. **Results of training (competence):**

Knowledge (cognitive sphere)	Skills (psychomotor sphere)	Personal and professional competences (relations)
<ul style="list-style-type: none"> - Shows knowledge of the basic concepts of herbs in traditional medicine, a subject and its value for practical activities of the expert of pharmacy - Knows difference between botanical, pharmakognostichesky and merchandising characteristic of plants. - Considering the increased requirements of practical pharmacy and medicine to use of medicinal raw materials in traditional medicine, the subject "Herbs in Traditional Medicine" considers a circle of the questions connected with preparation of medicinal plant raw materials, rational and careful attitude to resources of 	<ul style="list-style-type: none"> - Shows knowledge of the legislation of RK in the field of health care, the international standards, their structure and other specifications and technical documentation regulating quality, rules of preparation, acceptance, the requirement to terms and storage conditions of medicinal plant raw materials, a basis of a legal system of Kazakhstan, etc. - Carries out search and information processing about medicinal plant raw materials for consultation of doctors, druggists, the population concerning their preparation, application and storage; - Imparts to students own knowledge and abilities of 	<ul style="list-style-type: none"> - Shows knowledge of the legislation of RK in the field of health care, the international standards, their structure and other specifications and technical documentation regulating quality, rules of preparation, acceptance, the requirement to terms and storage conditions of medicinal plant raw materials, a basis of a legal system of Kazakhstan, etc. - Carries out search and information processing about medicinal plant raw materials for consultation of doctors, druggists, the population concerning their preparation, application and storage;

<p>herbs, sources of raw materials of mineral and animal origin, processing of plant raw materials and their application in medicine.</p> <p>- Shows knowledge of herbs in traditional medicine takes special place in the system of training of specialists with pharmaceutical education after the higher education as traditional medicine and national remedies always drew attention of doctors and researchers.</p> <p>- Some of such means after test them in clinics found application in modern medicine and received from herbs take the important place.</p> <p>- Knows the BAS main groups of natural origin and their physical and chemical properties, the main ways of biosynthesis, methods of allocation, cleaning, the qualitative and quantitative analysis of the MPRM active ingredients</p>	<p>work with information (educational, help, scientific) in the field of herbs in traditional medicine;</p> <p>- knows, herbs and their application in traditional medicine;</p> <p>- knows plants applied in the people at diseases of a liver and gall bladder;</p> <p>- knows plants applied in the people at diseases of urinogenital bodies;</p> <p>- Knows plants applied in the people at diseases of airways (lungs, a throat);</p> <p>- knows the poisonous plants applied in the people as medicinal means</p>	<p>- Imparts to students own knowledge and abilities of work with information (educational, help, scientific) in the field of herbs in traditional medicine;</p> <p>- to carry out comparative analysis herbs and their application in traditional medicine;</p> <p>- to carry out the comparative analysis of plants applied in the people at diseases of a liver and gall bladder;</p> <p>- to carry out comparative analysis on plants applied in the people at diseases of urinogenital bodies;</p> <p>- to carry out comparative analysis on plants applied in the people at diseases of airways (lungs, a throat);</p> <p>- to carry out comparative analysis on the poisonous plants applied in the people as medicinal means</p>
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11. Prerequisites: bachelor degree

12. Post-details: doctorate

13. Literature

The main:

7. Айдарбаева, Д. К. Растительные ресурсы Казахстана и их рациональное использование: учебное пособие / Д. К. Айдарбаева. - 2-е изд. - Караганда : АҚНҰР, 2019. - 194 с.
8. Қазақстан Республикасының Мемлекеттік фармакопеясы. Т. 1. – Алматы: «Жібек жолы» баспа үйі, 2015. – 720 бет
9. Қазақстан Республикасының Мемлекеттік фармакопеясы. Т. 2. – Алматы: «Жібек жолы» баспа үйі, 2009. – 792 бет.
10. Қазақстан Республикасының Мемлекеттік фармакопеясы. Т. 3. – Алматы: «Жібек жолы» баспа үйі, 2014. – 864 бет
11. Государственная Фармакопея Республики Казахстан. Т.1. – Алматы: Издательский дом «Жибек жолы», 2015. – 720 с. –
12. Государственная Фармакопея Республики Казахстан. Т.2. – Алматы: Издательский дом «Жибек жолы», 2009 – 804 с. –

Additional:

6. Келімханова, С. Е. Фармакогнозия: практикум / С. Е. Келімханова ; ҚР денсаулық сақтау министрлігі; С. Ж. Асфендияров атындағы ҚазҰМУ. - Қарағанды : ЖК "Ақнұр", 2014. - 180 бет. с.
7. Фармакогнозия. Рабочая тетрадь к практическим занятиям: И. В. Гравель [и др.]; под ред. И. А. Самылиной ; М-во образования и науки РФ. - 2-е изд., испр. и доп ; Рек. ГОУ ВПО Московская мед. акад. им. И. М. Сеченова. - М. : ГЭОТАР - Медиа, 2013. - 264 с

8. Горянов, В. И. Лекарственные растения Южно-Казахстанской области [Текст] : справочник / В. И. Горянов. - Шымкент : Алем, 2017. - 152 с.
 9. Болдыш, С. К. Летопись истории фармации Казахстана: моно-графия- Утв. Учен. Советом КГМУ. -Алматы:Эверо, 2014. - 168
 10. Тулебаев, Р. К. Лекарственные травы при заболеваниях органов дыхания: практическое руководство. - 2-е изд., испр. и доп. - Караганда : Medet Group, 2021. - 364 с.
- Electronic resources:**
5. Мырзағали-ұлы Ә., Дүйсембаева Б. Фармакогнозия: оқу құралы. 2018 Мырзағали-ұлы Ә., Дүйсембаева Б. Фармакогнозия: оқу құралы. 2018 <https://aknurpress.kz/reader/web/1858>
 6. Қазақстанның пайдалы өсімдіктері АйдарбаеваД.Қ., , 2019 <https://www.aknurpress.kz/reader/web/1046>
 7. Тоқсанбаева, Ж. С. Фармакогнозия [Электронный ресурс] : оқулық / Ж. С. Тоқсанбаева, Т. С. Серікбаева, К. К. Патсаева. - Электрон. текстовые дан. (13 465 КБ). - Шымкент : ОҚМА, 2021. - 207 б. эл. опт. диск (CD-ROM).
 8. Джангозина Д.М., Лосева И.В., Ивлева Л.П., Дербуш С.Н. Лекарственные растения, лекарственное растительное сырье и некоторые продукты переработки сырья животного происхождения. Учебное пособие по фармакогнозии. Издание второе, доп. Часть II: Лекарственные растения и лекарственное растительное сырье, содержащие сердечные гликозиды, сапонины, алкалоиды. – Алматы: издательство «Эверо», 2020/ https://www.elib.kz/ru/search/read_book/746

1. The department of Pharmacognosy

2. Level of training (magistracy)

3. Educational program: 7M10142 «Pharmacy»

4. Course: 2 (scientifically-pedagogical direction)

5. Name of elective discipline: «Pharmaceutical research of dietary supplements according to the technical regulations of the EAEU»

6. Amount of credits: 4

7. Purposes:

- Formation of theoretical knowledge (cognitive component)
- Mastering practical skills in analyzing dietary supplements used in herbal medicine
- Instilling communication skills in students in professional reasoned statements, defending their own point of view, developing logical thinking, the ability to participate in discussions, etc.
- Mastering legal competence by familiarizing yourself with regulatory documentation regulating the quality, efficiency and safety of MP and medicinal products (SF RK, etc.)

8. Tasks:

- to give a general idea to undergraduates about medicines used in standardization in phytotherapy and listed in the Register of the Republic of Kazakhstan
- mastering and familiarization with practical, communicative and legal skills of students with the basic provisions on medicinal plant raw materials and medicinal plants and prepared from them, dosage forms used in standardization in the Republic of Kazakhstan.
- formation of a holistic view of medicines from LRS used in standardization in the Republic of Kazakhstan.
- legal familiarization of undergraduates with the problems of medicinal plants used in standardization in the form of ready-made dosage forms in traditional medicine, disclosure of scientific approaches to their solution.
- familiarization with modern promising areas of application of medicinal plants and medicinal plant and factory-prepared ready-made dosage forms (tinctures, extracts, tablets, etc.) used in modern phytotherapy.

- to form the ability to independently understand medicinal plants and medicinal plant raw materials and finished medicines used in standardization in phytotherapy.

9. Justification of the choice of discipline:

Ensuring the proper quality of medicinal plant raw materials largely depends on the correct organization of control, its effectiveness and efficiency, as well as on the level of requirements laid down in regulatory documents (SP, AND) and the methods of analysis used. The study of the system of quality standards of medicinal plant raw materials, their products, testing methods, etc., established in a nationwide manner and mandatory for producers and consumers is currently a very urgent problem in the Republic of Kazakhstan.

10. Results of training (competence):

Knowledge (cognitive sphere)	Skills (psychomotor sphere)	Personal and professional competences (relations)
<p>-general concept of work safety in chemical testing laboratories, standardization, standards, laws used in standardization, medicinal plants, medicinal plant raw materials, the concept of biologically active substances, familiarity with the State Budget of the Republic of Kazakhstan, the Register of the Republic of Kazakhstan;</p> <p>-the general importance of medicinal plants and medicinal plant raw materials as a source of biologically active compounds used in standardization in modern phytotherapy;</p> <p>- to get acquainted with the general nomenclature of medicinal plants, medicinal plant raw materials and phytopreparations in finished form used in standardization and quality control in testing laboratories of the Republic of Kazakhstan;</p> <p>-to study, familiarize and master the necessary quality indicators used in the standardization of various ready-made dosage forms (tinctures, tablets, extracts, ointments, etc.) containing medicinal plant raw materials</p> <p>-recognize medicinal plants and medicinal plant raw materials used in standardization;</p> <p>- to carry out quality control according to the required indicators and analysis of medicinal products</p>	<p>- be able to correctly give a general description of medicinal preparations from medicinal plants and medicinal plant raw materials according to a common external feature, the main features characteristic of the LRS family, the main chemical composition and use in phytotherapy;</p> <p>- search and selection of material for the disclosure of the topic standardization of medicinal plants used in herbal medicine;</p> <p>-be able to use the necessary scientific, educational and professional literature for a future specialist, suitable for working with medicinal plants used in phytotherapy;</p> <p>- Be able to use regulatory documents (the Law on Medicines, the State Budget of the Republic of Kazakhstan, the Register of the Republic of Kazakhstan, standardization orders, standardization regulations, codes, etc.) on standardization of finished dosage forms used in herbal medicine;</p> <p>- Be able to state registration and re-registration of</p>	<p>- To carry out work with safety procedures of work in a chemical laboratory with medicinal plant raw materials and medicinal plants used in phytotherapy;</p> <p>- to carry out standardization and quality control of medicinal plant raw materials;</p> <p>- State registration and re-registration of some ready-made medicines: "Hawthorn tincture", "Motherwort Tincture", "Lily of the Valley Tincture" used in herbal medicine. General study of medicinal plant raw materials used in settings. Study of the general article on the GF of the Republic of Kazakhstan;</p> <p>- State registration and re-registration of some medicines: "Salvin – solution for external use", "Chlorophyllipt -alcohol 1% solution", "Infusion, tincture of birch buds", "Infusion of melissa herb" are derivatives of essential oils used in phytotherapy. Study of quality indicators for finished dosage forms.</p>

from medicinal plants and medicinal plant raw materials used in standardization;	medicinal raw materials, plant and animal origin The concept of registration, re-registration and certification of pharmaceutical products from raw materials of animal and vegetable origin in the Republic of Kazakhstan.	
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11. Prerequisites: bachelor degree

12. Post-details: doctorate

13. Literature

The main:

11. Орынбасарова, К. К. Дәрілік өсімдік шикізаттарын фармакогнос-тикалық талдау: оқу құралы. - Шымкент : Кітап ЖШС, 2016. – 320б.
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13. Мырзағали-ұлы, Ө. Фармакогнозия [Мәтін] / Ө. Мырзағали-ұлы, Б. Дүйсембаева. - 2-ші бас. - Қарағанды : Medet Group, 2018. - 278 б. с.
14. Қазақстан Республикасының Мемлекеттік фармакопеясы. Т. 1. – Алматы: «Жібек жолы» баспа үйі, 2015. – 720 бет
15. Қазақстан Республикасының Мемлекеттік фармакопеясы. Т. 2. – Алматы: «Жібек жолы» баспа үйі, 2009. – 792 бет.
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17. Государственная Фармакопея Республики Казахстан. Т.1. – Алматы: Издательский дом «Жибек жолы», 2015. – 720 с. –
18. Государственная Фармакопея Республики Казахстан. Т.2. – Алматы: Издательский дом «Жибек жолы», 2009 – 804 с. –
19. Государственная Фармакопея Республики Казахстан. Т.3. – Алматы: Издательский дом «Жибек жолы», 2014. – 872 с. –
20. Фармакопея США. Национальный формуляр: избранные обновления и все новые материалы с USP 29 - NF 24 по USP 33 - NF28 включительно: пер. с англ. - М. : ГЭОТАР - Медиа, 2012. - 888 с

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6. Токсанбаева, Ж. С. Лекарственное ресурсоведение [Текст] : учебное пособие / Ж. С. Токсанбаева, А. К. Патсаев, С. К. Сейдалиева. - Алматы : Эверо, 2018. - 116 с.
7. Горянов, В. И. Лекарственные растения Южно-Казахстанской области: справочник . - Шымкент : Алем, 2017. - 152 с
8. Фармакогнозия тестовые задания и ситуационные задачи [Текст] : учеб. пособие / под ред. И. А. Самылиной. - ; Мин-во образования и науки РФ. Рек. ГОУ ВПО "Мос. мед. акад. им. И. М. Сеченова". - М. : ГЭОТАР - Медиа, 2015. - 288
9. Фармакогнозия пәнінің зертханалық-тәжірибелік сабақтарына арналған қолданба [Мәтін] : оқу құралы / Ә. Қ. Патсаев. - Алматы : Эверо, 2018. - 392 бет
10. Келімханова, С. Е. Фармакогнозия [Мәтін] : практикум / С. Е. Келімханова ; ҚР денсаулық сақтау министрлігі; С. Ж. Асфендияров атындағы ҚазҰМУ. - Қарағанды : ЖК "Ақнұр", 2014. - 180 бет.

Джангозина Д.М., Лосева И.В., Ивлева Л.П., Дербуш С.Н.

Electronic resources:

4. Джангозина Д.М., Лосева И.В., Ивлева Л.П., Дербуш С.Н. Лекарственные растения, лекарственное растительное сырье и некоторые продукты переработки сырья животного происхождения. Учебное пособие по фармакогнозии. Издание второе, доп. Часть II: Лекарственные растения и лекарственное растительное сырье, содержащие сердечные гликозиды, сапонины, алкалоиды. – Алматы: издательство «Эверо», 2020/ https://www.elib.kz/ru/search/read_book/746
5. Джангозина Д.М., Лосева И.В., Ивлева Л.П., Дербуш С.Н. Лекарственные растения, лекарственное растительное сырье и некоторые продукты переработки сырья животного происхождения. Учебное пособие по фармакогнозии. Издание второе, доп. Часть I: Лекарственные растения и лекарственное растительное сырье, содержащие углеводы, жиры и жироподобные вещества, витамины, терпеноиды. – Алматы: издательство «Эверо», 2018. https://www.elib.kz/ru/search/read_book/744/
6. Джангозина Д.М., Лосева И.В., Ивлева Л.П., Дербуш С.Н. Лекарственные растения, лекарственное растительное сырье и некоторые продукты переработки сырья животного происхождения. Учебное пособие по фармакогнозии. Издание второе, доп. Часть III: Лекарственные растения и лекарственное растительное сырье, содержащие фенольные соединения и их гликозиды; кумарины, хромоны, лигнаны, антраценпроиз-водные, флавоноиды, дубильные вещества, биологически активные вещества малоизученного состава и лекарственное сырье животного происхождения. –Алматы: издательство «Эверо», 2020. –https://www.elib.kz/ru/search/read_book/748/

1. The department of Pharmacognosy

2. Level of training (magistracy)

3. Educational program: 7M10142 «Pharmacy»

4. Course: 1 (scientifically-pedagogical direction)

5. Name of elective discipline: «Standardization of medicinal plant raw materials»

6. Amount of credits: 4

7. Purposes:

- Formation of theoretical knowledge (cognitive component)
- Mastering practical skills in conducting pharmacognostic analyzes of medicinal plant materials
- Motivated training of undergraduates for continuous improvement and development of abilities for independent and creative development of materials on medicinal plant raw materials and standardization of medicinal plant materials.

8. Tasks:

- to give a general idea to undergraduates about medicines used in standardization in phytotherapy and listed in the Register of the Republic of Kazakhstan
- mastering and familiarization with practical, communicative and legal skills of students with the basic provisions on medicinal plant raw materials and medicinal plants and prepared from them, dosage forms used in standardization in the Republic of Kazakhstan.
- formation of a holistic view of medicines from LRS used in standardization in the Republic of Kazakhstan.
- legal familiarization of undergraduates with the problems of medicinal plants used in standardization in the form of ready-made dosage forms in traditional medicine, disclosure of scientific approaches to their solution.
- familiarization with modern promising areas of application of medicinal plants and medicinal plant and factory-prepared ready-made dosage forms (tinctures, extracts, tablets, etc.) used in modern phytotherapy.
- to form the ability to independently understand medicinal plants and medicinal plant raw materials and finished medicines used in standardization in phytotherapy.

9. Justification of the choice of discipline:

Currently, under the leadership of WHO, the process of harmonization of quality standards for medicines continues, in accordance with which registration and subsequent quality control of substances and preparations are carried out in all countries of the world community. In this regard, research conducted in this direction is quite relevant. Ensuring the proper quality of medicinal plant raw materials largely depends on the proper organization of control, its effectiveness and efficiency, as well as on the level of requirements laid down in the RD and the analytical methods used. The study of this discipline makes it possible to understand the distinctive features of standardization and quality control of pharmaceutical products in comparison with other areas of standardization and quality control.

10. Results of training (competence):

Knowledge (cognitive sphere)	Skills (psychomotor sphere)	Personal and professional competences (relations)
<p>-general concept of work safety in chemical testing laboratories, standardization, standards, laws used in standardization, medicinal plants, medicinal plant raw materials, the concept of biologically active substances, familiarity with the State Budget of the Republic of Kazakhstan, the Register of the Republic of Kazakhstan;</p> <p>-the general importance of medicinal plants and medicinal plant raw materials as a source of biologically active compounds used in standardization in modern phytotherapy;</p> <p>- to get acquainted with the general nomenclature of medicinal plants, medicinal plant raw materials and phytopreparations in finished form used in standardization and quality control in testing laboratories of the Republic of Kazakhstan;</p> <p>-to study, familiarize and master the necessary quality indicators used in the standardization of various ready-made dosage forms (tinctures, tablets, extracts, ointments, etc.) containing medicinal plant raw materials</p> <p>-recognize medicinal plants and medicinal plant raw materials used in standardization;</p> <p>- to carry out quality control according to the required indicators and analysis of medicinal products</p>	<p>- be able to correctly give a general description of medicinal preparations from medicinal plants and medicinal plant raw materials according to a common external feature, the main features characteristic of the LRS family, the main chemical composition and use in phytotherapy;</p> <p>- search and selection of material for the disclosure of the topic standardization of medicinal plants used in herbal medicine;</p> <p>-be able to use the necessary scientific, educational and professional literature for a future specialist, suitable for working with medicinal plants used in phytotherapy;</p> <p>- Be able to use regulatory documents (the Law on Medicines, the State Budget of the Republic of Kazakhstan, the Register of the Republic of Kazakhstan, standardization orders, standardization regulations, codes, etc.) on standardization of</p>	<p>- To carry out work with safety procedures of work in a chemical laboratory with medicinal plant raw materials and medicinal plants used in phytotherapy;</p> <p>- to carry out standardization and quality control of medicinal plant raw materials;</p> <p>- State registration and re-registration of some ready-made medicines: "Hawthorn tincture", "Motherwort Tincture", "Lily of the Valley Tincture" used in herbal medicine. General study of medicinal plant raw materials used in settings. Study of the general article on the GF of the Republic of Kazakhstan;</p> <p>- State registration and re-registration of some medicines: "Salvin – solution for external use", "Chlorophyllipt -alcohol 1% solution", "Infusion, tincture of birch buds", "Infusion of melissa herb" are derivatives of essential oils used in phytotherapy. Study of quality indicators for finished dosage forms.</p>

<p>from medicinal plants and medicinal plant raw materials used in standardization;</p>	<p>finished dosage forms used in herbal medicine; - Be able to state registration and re-registration of medicinal raw materials, plant and animal origin The concept of registration, re-registration and certification of pharmaceutical products from raw materials of animal and vegetable origin in the Republic of Kazakhstan.</p>	
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11. Prerequisites: bachelor degree

12. Post-details: doctorate

13. Literature

The main:

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17. Государственная Фармакопея Республики Казахстан. Т.2. – Алматы: Издательский дом «Жибек жолы», 2009 – 804 с. –
18. Государственная Фармакопея Республики Казахстан. Т.3. – Алматы: Издательский дом «Жибек жолы», 2014. – 872 с. –

Additional:

5. Фармакопея США. Национальный формуляр: избранные обновления и все новые материалы с USP 29 - NF 24 по USP 33 - NF28 включительно: пер. с англ. - М. : ГЭОТАР - Медиа, 2012. - 888 с
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9. Токсанбаева Ж.С., Патсаев А.К., Сейдалиева С.К. Лекарственное ресурсоведение. – Учебное пособие. –Алматы: Эверо, 2020. – с. 116.https://www.elib.kz/ru/search/read_book/800/
10. Токсанбаева Ж.С., Патсаев Ә.Қ., Серікбаева Т.С. Дәрілік ресурстану – Оқу құралы – Алматы: Эверо,2020. – 112б. https://www.elib.kz/ru/search/read_book/801/

1. The department of Pharmacognosy

2. Level of training (magistracy)

3. Educational program: 7M10142 «Pharmacy»

4. Course: 1 (scientifically-pedagogical direction)

5. Name of elective discipline: «Prospects for the use of domestic medicinal plants»

6. Amount of credits: 3

7. Purposes:

Acquaintance of undergraduates with topical issues of a pharmakognoziya, the organization of preparations of medicinal plant raw materials, the chemical composition and classification of herbs, bases of rational environmental management, methods of procuring process of medicinal plant raw materials and its standardization and also with the main directions of scientific research in the field of studying of herbs.

8.Tasks: - ability to define humidity, ash-content, characteristic numerical indicators of medicinal plant raw materials (in fats — acid number, iodic number, etc.);

- studying high-quality and quantitative definition of active ingredients of medicinal raw materials of plant and animal origin;

- carrying out phytochemical analysis of medicinal raw materials of plant and animal origin;

- to create the skills necessary for implementation of professional activity of the undergraduate;

- to give a general idea to undergraduates about the medicines applied at standardization in phytotherapy and entered in the Register of the Republic of Kazakhstan

- development and acquaintance by practical, communicative and legal skills of students with basic provisions about medicinal plant raw materials and herbs and ready of them, the dosage forms applied at standardization in the Republic of Kazakhstan.

- formation of complete idea of medicines from MPRM applied at standardization in the Republic of Kazakhstan.

- legal acquaintance of students with problems of the herbs applied at standardization in the form of ready dosage forms at traditional medicine, disclosure of scientific approaches in their decision.

9. Justification of the choice of discipline:

“Prospects for the use of domestic medicinal plants” – studies medicinal plants, medicinal plant raw materials and some products of primary processing of plant and animal origin growing on the territory of the Republic of Kazakhstan in wild and cultivated conditions.

10. Results of training (competence):

Knowledge (cognitive sphere)	Skills (psychomotor sphere)	Personal and professional competences (relations)
<ul style="list-style-type: none"> - "Features of the phytochemical analysis of medicinal raw materials of plant and animal origin" as science and as subject matter and main stages of development. - a general meaning of herbs and medicinal plant raw materials, as source of biologically active connections applied at standardization in modern phytotherapy; - to study the general nomenclature of herbs, medicinal plant raw materials and the phytomedicines in a ready form used at standardization and quality control in testing laboratories of the Republic of Kazakhstan; - to study, examine and master necessary indicators of quality, various ready dosage forms applied at standardization (tinctures, tablets, extracts, ointments, etc.), containing medicinal plant raw materials; - Acquaintance with safety measures of work in chemical laboratory with medicinal plant raw materials and herbs, applied in phytotherapy; - Defines distinctive features of standardization and quality control of the crushed MPRM in comparison with other areas of standardization and quality control; - Explains the parameters used in standardization and quality control of the crushed MPRM; - Explains essence of quality control of the crushed MPRM, its purpose and tasks as sciences; - to distinguish herbs and medicinal plant raw materials, applied at standardization in phytotherapy. 	<ul style="list-style-type: none"> - ability to define humidity, ash-content, characteristic numerical indicators of medicinal plant raw materials (in fats — acid number, iodic number, etc.); - Knows zhiropodobny substances. Wax: beeswax, spermatst also lanolin; - studying high-quality and quantitative definition of active ingredients of medicinal raw materials of plant and animal origin; - is able systematizes knowledge of a subject and problems of standardization and quality control of the crushed medicinal plant raw materials of the packed-up products; - Owns metodolgiy standardization and quality control of the crushed MPRM; - Is able defines distinctive features of standardization and quality control of the crushed MPRM in comparison with other areas of standardization and quality control; - Explains the parameters used in standardization and quality control of the crushed MPRM; - Explains essence of quality control of the crushed MPRM, its purpose and tasks as sciences; - Is able to compare evaluation stages of standardization and quality control of MPRM; - Is able to characterize quality control investigation phases; 	<ul style="list-style-type: none"> - carrying out phytochemical analysis of medicinal raw materials of plant and animal origin; - to define humidity, ash-content, characteristic numerical indicators of medicinal plant raw materials (in fats — acid number, iodic number, etc.); - to carry out analyses on zhiropodobny substances. Wax: beeswax, spermatst also lanolin; - to carry out high-quality and quantitative definition of active ingredients of medicinal raw materials of plant and animal origin; - Ability to apply standard and technical documentation, knowledge in the field of standard and legal bases of protection of intellectual property and a transfer of technologies, knowledge in the field of ISO Free possession of professional knowledge in the field of standardization and quality control; - To Vladeet to provide stability of indicators~ productions and qualities of the products which are turned out~; - To carry out the touch assessment of finished goods; - To carry out the analysis and to generalize the received results for use in production and technological activity; - to predict emergence of possible problems, crisis or

	- knows ways of use and application in medicine of medicinal plant raw materials	unusual situations, to find possibilities of their monitoring, permission or prevention; - To carry out environmental control
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11. Prerequisites: bachelor degree

12. Post-details: doctorate

13. Literature

The main:

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21. Государственная Фармакопея Республики Казахстан. Т.3. – Алматы: Издательский дом «Жибек жолы», 2014. – 872 с. –
22. Фармакопея США: USP 29. Национальный формуляр: NF 24. В 2 т. Т. 1 [Текст] : сб. стандартов: пер. с англ. - ; С разрешения Фармакопейной Конвенции США. - М. : ГЭОТАР - Медиа, 2009. - 1720 +эл. опт. диск (CD-ROM)
23. Фармакопея США: USP 29. Национальный формуляр NF 24. В 2 т. Т. 2 [Текст] : сб. стандартов: пер. с англ. - ; С разрешения Фармакопейной Конвенции США. - М. : ГЭОТАР - Медиа, 2009. - 1800 +эл. опт. диск (CD-ROM)
24. Фармакопея США. Национальный формуляр: избранные обновления и все новые материалы с USP 29 - NF 24 по USP 33 - NF28 включительно: пер. с англ. - М.: ГЭОТАР - Медиа, 2012.-888с

Additional:

5. Лекарственные растения, растительное сырье и некоторые продукты переработки сырья животного происхождения. Ч. 1. Лекарственные растения и лекарственное растительное сырье содержащие углеводы, жиры и жироподобные вещества, витамины, терпеноиды [Текст] : учеб.-методическое пособие по фармакогнозии / Д. М. Джангозина [др.]. - 2-е изд., доп. - Алматы : Эверо, 2014. - 208 с.
6. Лекарственные растения, лекарственное растительное сырье и некоторые продукты переработки сырья животного происхождения. Ч. 2. Лекарственные растения и лекарственное растительное сырье, содержащие сердечные гликозиды, сапонины, алколоиды [Текст] : учеб. - методическое пособие по фармакогнозии / Д. М. Джангозина [и др.]. - 2-е изд., доп. - Алматы : Эверо, 2014. - 194 с.

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8. Горянов, В. И. Лекарственные растения Южно-Казахстанской области [Текст] : справочник / В. И. Горянов. - Шымкент : Алем, 2017. - 152 с

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