

APPROVED
Chairman of academic and methodical council,
Vice-Rector for academic affairs
_____ Musa kyzy Alina
<<_____>> _____ 2021yr.

SYLLABUS
CLINICAL PHARMACOLOGY

2018-2019 academic year
For students of medical faculty
3rd year of study VI semester 1-23 groups
2 credits (72 hours, including auditoria 36 h, independent work of students -36 h.)

Lecturer: 1-23 groups	Toktogulova Bermet 0553 160 390 (Watsapp) Email: bermesha@mail.ru
Practice: 1-16 groups	Toktogulova Bermet 0553 160 390 (Watsapp) Email: bermesha@mail.ru
17-23 groups	Faisal Sumbal 0 709 471 912 (Watsapp) Email: sumbalfaisal001@gmail.com

Arrangement specifications for students:

Lectures are held online on the ZOOM platform according to the by timetable. Practical classes are in Morphological kampus, classes №406, 202

Pre-requisites. For the successful study of this course, students are expected to learn more of P-drugs choosing algorithm;

Classification of adverse reactions;

Main clinical and pharmacological approaches to choosing of drugs in different internal diseases for individual patients in concrete clinical situations;

Peculiarities of rational choosing of drugs in special situations as pregnancy, breast-feeding, elderly age etc.

Post-requisites. Family medicine.

Course studies:

The main pharmacological groups of preparations; mechanisms of action, possible adverse reactions, contraindications, and drug interactions of the main pharmacological groups of preparations.

Rating (100 maximal score): 20 attendance – 40 (class activity20 +practical skills20) – 20 individual work – 20 MCQ. All kind of classes require full attendance.

Reduction of progress rating:

- ✓ Absence of lectures and unavailability of individually elaborated abstracts on the practical class reduces 2 scores of class activity.
- ✓ Missed lesson counts as 2 marks of attendance for 2 hours irrespective of the reason.
- ✓ Being late for class reduces 1 score of attendance for every case.

Request to appearance: clean and neat doctor's smock (apron), shoe covers, mask. Student with inappropriate appearance shall **not be admitted** to lesson.

To be accepted as passing the module of clinical pharmacology students must have:

- A. Lectures and individual working notes and >80% of class attendance
- B. Positive marks of class activity (>24)
- C. Successful final unit MCQ (>12)

Assignments for working off missed class are mandatory (max – 20 for class activity only. An excused absence is still an absence): Prepare the abstract or Power Point presentation on the topic of missed classes and answer the questions.

Requirements for the implementation of the abstract:

- ✓ Be presented in electronic and printed formats / with 2 slide on page and short notes,
- ✓ Be typed in Times New Roman 12, with 1.5 interval / avoiding much text in slide in ppt.
- ✓ The first page / slide should contain the full name of the student, group, semester, the name of the abstract, the data of teacher, the filing date of the abstract.
- ✓ Contain parts: introduction, main part, findings / conclusions, list of references, resource.
- ✓ The total volume of essay shall be 6 - 7 pages.

**WORKING PROGRAMME
COURSE CONTENT**

The Goal of unit: students are to obtain knowledge in the area of clinical pharmacology and become able to choose rational treatment in different clinical situations with regard for specifics of their future practical work.

Tasks: to achieve the goal mentioned above it is necessary to realize the following tasks including the required scope of knowledge and skills: upon the completion of the clinical pharmacology course **students must:**

Know about: P-drugs choosing algorithm; Classification of adverse reactions; Main clinical and pharmacological approaches to choosing of drugs in cases of different internal diseases for individual patients in specific clinical situations; Peculiarities of rational choosing of drugs in special situations as pregnancy, breast-feeding, elderly age, pediatric.

Be able to: Choose the rational treatment for the patients with different internal diseases according to P-drugs choosing algorithm; Recognize and diagnose side-effects of drugs on the basis of clinical and laboratory findings, prevent or manage them.

Have skills: To send a «yellow card» in case of severe or previously not described adverse reaction development; Consult, inform, warn a patient about prescribed treatment; to monitor treatment; Demonstrate and present a patient at clinical consultation sessions, round-tables, conferences.

UNIT № 1

Thematic plan of lectures

№	Lecture topics	Hours
1.	Introduction to clinical pharmacology. Concept of rational treatment	2 h
2.	Clinical Pharmacokinetics and Pharmacodynamics.	2 h
3.	Side effects. Drugs interaction.	2 h
4.	Rational antimicrobial treatment.	2 h
5.	Clinical and pharmacological approaches to choosing of drugs for arterial hypertension.	2 h
	Total:	10 h

Thematic plan of practical classes

№	Seminar topics	Hours
1.	P-drugs choosing algorithm.	2 h
2.	Clinical and pharmacological approaches to choosing of drugs for respiratory tract infections. Clinical and pharmacological approaches to choosing of drugs for urinary tract infections.	2 h
3.	Clinical pharmacology of antiprotozoal drugs. Clinical pharmacology of antiviral drugs. Antifungal drugs.	2 h

4.	Clinical and pharmacological approaches to choosing of drugs in coronary disease	2 h
5.	Clinical and pharmacological approaches to choosing of drugs for heart failure.	1 h
	The 1st Module (control work).	1h
	Total:	10 h

UNIT № 2

Thematic plan of lectures

№	Lecture topics	Hours
1.	Clinical pharmacology of drugs used in insomnia and anxiety.	2 h
2.	Clinical and pharmacological approaches to choosing of drugs for diabetes mellitus.	2 h
3.	Clinical pharmacology of nonsteroid anti-inflammatory drugs (NSAIDs).	2 h
4.	Clinical and pharmacological approaches to drugs choosing in bronchial-obstructive diseases	2 h
	Total:	8 h

Thematic plan of practical classes

№	Seminar topics	Hours
1.	Clinical and pharmacological approaches to choosing of drugs for arthritis.	2 h
2.	Clinical and pharmacological approaches to choosing of drugs for iron-deficiency anemia.	2 h
3.	Clinical and pharmacological approaches to choosing of drugs choosing for peptic ulcer disease.	2 h
4.	Clinical pharmacology of drugs used in geriatrics.	1 h
	The 2nd Module (control work).	1 h
	Total:	8 h

Program content of the “Clinical pharmacology” Unit

UNIT № 1

Topic № 1. Introduction to clinical pharmacology. Concept of rational treatment.

Lecture – 2 h

The definition of pharmacology and clinical pharmacology. Structure of clinical pharmacology. The subject of clinical pharmacology. WHO concept of problem-based studying. P-drug definition. Targets of treatment.

Topic № 2. P-drugs choosing algorithm.

Practice – 2 h

Efficacy, safety, suitability, cost of drugs. Five steps of P-drugs choosing algorithm. Consultation, information, instruction and warning of patients. Monitoring of treatment. Analysis of clinical cases.

Topic № 3. Clinical Pharmacokinetics and Pharmacodynamics.

Lecture – 2 h

Definition of clinical Phk & Phd. The main concept of clinical pharmacology. Loading dose. Maintenance dose. Algorithm of individual dose correction.

Topic № 4. Side effects. Drugs interaction.

Lecture – 2 h

Safety of treatment. Adverse reactions, definition, situation, classification. Diagnosis, treatment, prevention of adverse reactions. Information about adverse reactions. Pharmacoepidemiology. Pharmacovigilance. Upsala monitoring center. Drugs interaction.

Topic № 5. Rational antimicrobial treatment.

Lecture – 2 h

Situation in the world, global problems of antimicrobial treatment. The main groups of antibiotics. General principles of rational antimicrobial treatment. Mechanisms of action of antibiotics. Antimicrobial prophylaxis.

Topic № 6. Clinical and pharmacological approaches to choosing of drugs in respiratory tract infections, in urinary tract infections.

Practice – 2 h

The main pharmacological groups of antibiotics, mechanism of action, therapeutic use, adverse reactions, contraindications. Rational choosing of drugs for respiratory tract infections, and urinary tract infections. Rational choosing of drugs for other infections
Analysis of clinical cases.

Topic № 7. Clinical pharmacology of antiprotozoal drugs. Clinical pharmacology of antiviral drugs. Antifungal agents.

Seminar – 2 h

Antimalarial drugs, classification, mechanism of action, therapeutic use, possible adverse reactions. Antiprotozoal drugs, classification, mechanism of action, therapeutic use, possible adverse reactions. Amoebicides, classification, mechanism of action, therapeutic use, possible adverse reactions. Antihelmintic drugs, classification, mechanism of action, therapeutic use, possible adverse reactions. The main clinical and pharmacological approaches to rational antiprotozoal drugs choosing. Clinical pharmacology of antiviral drugs. Antifungal agents.

Topic № 8. Clinical and pharmacological approaches to choosing of drugs for arterial hypertension.

Lecture – 2 h

The main pharmacological groups of antihypertensive drugs, mechanism of action, therapeutic use, adverse reactions, contraindications. Rational choosing of drugs for arterial hypertension.

Topic № 9. Clinical and pharmacological approaches to choosing of drugs for the coronary disease.

Practice -2 h

The main pharmacological groups, mechanism of action, therapeutic use, adverse reactions, contraindications. Rational choosing of drugs for various forms of the coronary disease. Use of drugs depending on the clinical features.
Analysis of clinical cases.

Topic № 10. Clinical and pharmacological approaches to choosing of drugs for heart failure.

Practice – 1 h

The main pharmacological groups, mechanism of action, therapeutic use, adverse reactions, contraindications. Rational choosing of drugs for heart failure. Use of drugs depending on the clinical features.
Analysis of clinical cases.

UNIT № 2

Topic № 1. Clinical pharmacology of drugs used in insomnia and anxiety.

Lecture – 2 h

Main pharmacological groups of hypnotic drugs. Mechanism of action, therapeutic use, adverse reactions, contraindications. Non-pharmacological program of anxiety treatment. The main clinical and pharmacological approaches to anxiety treatment.

Topic № 2. Clinical and pharmacological approaches to choosing of drugs for diabetes mellitus.

Lecture – 2 h

The main pharmacological groups of hypoglycemic drugs, mechanism of action, therapeutic use, adverse reactions, contraindications. Insulin therapy, indications and contraindications. Rational choosing of drugs for diabetes mellitus.

Topic № 3. Clinical pharmacology of nonsteroid antiinflammatory drugs (NSAIDs).

Lecture – 2 h

NSAIDs, mechanism of action, classification. Therapeutic action. Therapeutic use. Possible adverse reactions, prevention and treatment. The main clinical and pharmacological approaches to rational NSAIDs choosing.

Topic № 4.

Clinical and pharmacological approaches to choosing of drugs for bronchial obstructive diseases.

Lecture – 2 h

The main pharmacological groups of broncholytics, mechanism of action, therapeutic use, adverse reactions, contraindications. Rational drug choosing in COPD and asthma.

Topic № 5. Clinical and pharmacological approaches to choosing of drugs for arthritis.

Practice – 2 h

The main pharmacological groups of antirheumatic drugs, mechanism of action, therapeutic use, adverse reactions, contraindications. Rational choosing of drugs for rheumatoid arthritis, gout. Use of drugs depending on the clinical features of arthritis.

Analysis of clinical cases.

Topic № 6. Clinical and pharmacological approaches to choosing of drugs for iron-deficiency anemia.

Practice – 2 h

Iron drugs, mechanism of action, therapeutic use, main adverse reactions. Rational choosing of drugs for iron-deficiency anemia. Clinical and pharmacological approaches to choosing of drugs for other anemia.

Analysis of clinical cases.

Topic № 7. Clinical and pharmacological approaches to choosing of drugs for peptic ulcer disease.

Practice – 2 h

PPI, H₂-blockers, antacids, cytoprotectors, mechanism of action, therapeutic use, adverse reactions, contraindications. Rational choosing of drugs for peptic ulcer disease. Clinical pharmacology of drugs used in the treatment of gastrointestinal diseases.

Analysis of clinical cases.

Topic № 8. Clinical pharmacology of drugs used in geriatric.

Practice – 1 h

Medicinal treatment at the older age. Pharmacokinetics in the elderly. Pharmacodynamics in the elderly. Polypharmacy at the older age. Drugs adverse reactions and contraindications at the older age. Considerations for effective treatment in the elderly.

Analysis of clinical cases.

Forms and methods of student’s knowledge control:

Current knowledge control - control work, questions-answers, clinical cases.

Final knowledge control – credit, questions-answers, module.

Structure of individual and group assignments in “Clinical pharmacology” Unit

- Study with the use of literature – 18h
- Tasks to perform – 18h
- Total – 36h

Tasks for independent work:

Student must choose and prepare a presentation or essay on one of the following topics:

№	Themes of out Classes	Hours
Unit № 1		
1	Rational prescribing and prescription writing	2 h
2	Drug Receptors.	2 h
3.	Clinical pharmacology of ethanol	2 h
4.	Clinical pharmacology of sympathomimetic drugs	2 h
5	Vasoactive peptides (angiotensin II, natriuretic peptides)	2 h
6	Clinical pharmacology of cancer chemotherapeutic drugs	2 h
7	Drugs used in dislipidemia.	2 h
8	Clinical pharmacology of dependence and addiction	2 h
9	Clinical pharmacology of glucocorticosteroids (GCSs).	2 h

Unit № 2		
10	Drugs used in pain syndrome	2 h
11	Clinical uses of immunosuppressive drugs	2 h
12	Drug choosing in blood clotting	2 h
13	Dermatologic pharmacology	2 h
14	Drugs used in the treatment in irritable bowel syndrome	2 h
15	Clinical pharmacology of local anesthetics	2 h
16	Clinical pharmacology of thyroid and antithyroid drugs.	2 h
17	Nutritional supplements. Botanicals (“Herbal Medications”)	2 h
18	Clinical pharmacology of drugs used in pregnancy and pediatrics.	2 h
	Total:	32 h

Mandatory literature:

1. Bertram G. Katzung, MD, PhD. Basic & Clinical Pharmacology, 15th Edition. – 2021. – University of California, San Francisco.
2. Clinical pharmacology. Ninth edition. P.N. Bennett, M.J. Brown. 2003.
3. Harrison’s Principles of Internal Medicine. 17th Ed. New York, NY: McGraw-Hill
4. WHO model formulary / editors, Marc C. Stuart, Maria Kouimtzi, Suzanne R. Hill.

Additional literature:

1. 2018 ESC/ESH Guidelines for the management of arterial hypertension.
2. 2017. ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/NMA/PCNA Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults.
3. Current Medical Diagnosis & Treatment. 45th edition. Edited by Lawrence M. Tierney, Jr. Stephen J. McPhee Maxine A. Papadakis. 2006.
4. 2013. ESC Guidelines on diabetes, pre-diabetes, and cardiovascular diseases developed in collaboration with the EASD.
5. 2016. ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure.
6. International guidelines.
7. 2015, American College of Rheumatology Guideline for the Treatment of Rheumatoid Arthritis. – Singh J.A. et al. Arthritis Care & Research DOI 10.1002/acr.22783
8. <http://www.rheumatology.org/Portals/0/Files/ACR%202015%20RA%20Guideline.pdf>
9. ADA Clinical Practice Guidelines, Diabetes Care. 31: S3-S4, 2008.
10. <http://www.nejm.org/-The England Journal of Medicine>
11. <http://www.clinician reviews.com/- Clinician reviews>
12. www.escardio.org/guidelines.
13. <http://www.webmd.com/lung/copd/gold-criteria-for-copd>
14. www.who.int/respiratory/copd/
15. www.PubMed