MINISTRY OF HIGHER EDUCATION, SCIENCE AND INNOVATIONS OF THE REPUBLIC OF UZBEKISTAN

MINISTRY OF HEALTH CARE OF THE REPUBLIC OF UZBEKISTAN

TASHKENT STATE MEDICAL UNIVERSITY

«APPROVED»
The First Vice-Rector for
Academic Affairs of Tashkent
State Medical University
_____ Kh.N.Khaitov
_____ 2025

SYLLABUS
ON THE MODULE OF PHARMACOLOGY

Area of knowledge:	900 000	- Healthcare and social affairs
Field of education:	910 000	- Healthcare
Direction of education:	60910200	- General medicine

Tashkent -2025

DEPARTMENT OF PHARMACOLOGY

SYLLABUS
OF THE "PHARMACOLOGY" MODULE
for the 3rd course of General medicine faculty

Subject Name:	**Pharmacology**
Module type:	**Mandatory**
Code of the module:	**FR15-606**
Academic year:	**2025/2026**
Semester:	**5-6**
Form of education:	**Daytime**
Form of classes and hours allocated to the semester:	**210**
Lecture	**24**
Practical training	**81**
Laboratory training	**-**
Seminar	**-**
Independent education	**105**
Credit amount:	**7**
Evaluation form:	**FC (Test)**
Module language:	**English**

Module Objective (MO)	
MO1	- in the process of training a family doctor, students are taught groups of drugs, their mechanisms of action, the selection of therapeutic amounts depending on age, writing prescriptions for drug forms, ways of administration, instructions for use in diseases, side effects and instructions is to teach impossible situations. The module will provide future family doctors with knowledge, skills and qualifications about drugs used in the treatment and prevention of various diseases; in the general prescription section of the module, the forms and preparation of medicinal substances, teaching the rules of prescription writing, in the general pharmacology section, the analysis of pharmacokinetics and pharmacodynamics of medicinal substances, in the special pharmacology section, teaching the nervous system, executive organs, and metabolism formation of skills related to the pharmacology of secretory, antimicrobial and antitumor substances. Knowing how to apply medical aid measures in case of drug poisoning, teaching how to use them in practice, how to change the pharmacokinetics and pharmacodynamics of drugs in children and the elderly under the influence of various factors,

	consists of introduction with the history of the development of the science of pharmacology in Uzbekistan and the achievements of pharmacologists.
Basic knowledge necessary for mastering science	
1.	medical biology
2.	therapy
3.	biochemistry
4.	normal physiology
5.	pathological physiology
6.	anatomy

Learning outcomes (LO)	
	In terms of knowledge:
LO 1	having an idea about the: classification groups of drugs, the names of the drugs included in the groups, the mechanism of action, the types of action, special instructions for age, the measures and methods of assistance provided in case of drug poisoning
LO 2	the basic rules of the general recipe, be able to write prescriptions for different forms of medicine (liquid, soft, solid and inhaled). the basics of pharmacokinetics and pharmacodynamics of drugs, instructions for use of drugs, side effects and contraindications for use,
LO 3	new analogs of drugs, symptoms of acute drug poisoning, classification of drugs, know the characteristics, classification, indications and contraindications of drugs affecting the peripheral nervous system, the rules of prescribing them,
LO 4	to know the characteristics, classification, indications and contraindications of drugs affecting the central nervous system, the rules of prescribing them, should know and be able to use the comparative evaluation of drugs of the pharmacotherapeutic group and measures to prevent side effects
	the basic rules of the general prescription,
	In terms of skills:
LO 5	be able to analyze taking into account the mechanism of action, activity of drugs, their pharmacological properties, correct identification of drug groups;
LO 6	dosage of drugs depending on the age of the patient, determining ways to introduce drugs;
LO 7	to be able to determine the correct choice of drugs and their therapeutic effect in situational matters;
LO 8	mastering the rules of prescription writing, should have the skills to write prescriptions for different forms of various drugs and to prepare them.

Science content	
Form of training: lecture (L)	
5th Semester	
L1	General pharmacology. Pharmacokinetics and pharmacodynamics of drugs
L2	Efferent innervation. Drugs affecting cholinergic synapses
L3	Drugs that stimulate adrenergic synapses.
L4	Analgesics
L5	Neuroleptics. Anxiolytics.
L6	Medicines affecting the activity of the respiratory system
L7	Cardiotonic and antianginal agents.
	6th Semester
L1	Hypotensive and hypertensive agents.
L2	Medicines affecting gastrointestinal and liver function.
L3	Medicines affecting the blood system.
L4	Medicines affecting metabolism. Glucocorticoids. Anti-inflammatory drugs.
L5	Antibiotics.

Form of training: practical training (Pr)	
5th Semester	
P1	The importance of the prescription in the preparation of GP. Doses. Prescription and its structure. Solid and soft drug forms and rules for prescribing them.
P2	Liquid drug forms and rules for prescribing them (Internal).
P3	Liquid drug forms and rules for prescribing them (External).
P4	General pharmacology. Pharmacokinetics and pharmacodynamics of drugs.
P5	Medicines affecting the afferent nervous system.
P6	Medicines affecting M- and N- cholinergic receptors. Anticholinesterase agents. Medicines affecting M-cholinergic receptors.
P7	Medicines affecting N-cholinerceptors.
P8	Medicines affecting adrenoreceptors. Adrenoreceptor blockers.
P9	Narcotics. Ethyl alcohol. Hypnotics.
P10	Analgesics.
P11	Neuroleptics. Anxiolytics. Psychostimulants. Antidepressants.
P12	Medicines affecting respiratory systems.
6th Semester	
P13	Cardiotonics. Antiarrhythmic agents.
P14	Antianginal agents.
P15	Hypotensive agents. Hypertensive agents.
P16	Medicines affecting the digestive system. Means affecting liver function. Hepatoprotectors.
P17	Diuretics. Medicines affecting the muscles of the uterus.
P18	Medicines affecting the blood system.
P19	Hormonal drugs with protein and polypeptide structure. Hormonal preparations with a steroid structure.

P20	Anti-inflammatory agents. Anti-allergic agents.
P21	Antiseptic and disinfectants. Basic criteria and requirements of chemotherapy. Antibiotics Part I
P22	Antibiotics Part II. Sulfanilamide preparations.
P23	Anti-tuberculosis remedies and anti-fungal agents
P24	Antiviral.

Independent education (IE)		**hours**
5th Semester		
1.	Prescriptive laws and orders of the President of the Republic of Uzbekistan.	5
2.	Regulatory documents used in drug control. State Register of Medicines.	5
3.	Pharmacology of the drug Tropicamide.	5
4.	Nicotinism and its complications. Effects of nicotinism on the body of adolescents and women.	5
5.	Anaphylactic shock and its treatment.	5
6.	Alcoholism and its complications. Effects of alcoholism on the fetus.	5
7.	Drug addiction and its complications.	5
8.	Phytopreparations and their use.	5
9.	Drugs used in the treatment of Parkinson's disease.	5
10.	Antiepileptic drugs.	5
11.	Lithium salts. Sedatives	5
12.	Nootropics. Analeptics. Dopamine and dopaminergic agents. Serotonin and serotonergic agents.	5
6th Semester		
13.	Medicines used in hypertensive crisis.	3
14.	Means affecting liver function. Hepatoprotectors. Hepatoprotective agents used in the treatment of hepatitis caused by drugs.	3
15.	Medicines that increase the tone of the human body. Agents affecting immunity.	3
16.	Hyperthermia syndrome and drugs used in its treatment.	3
17.	Pharmacodynamics of the drug torasemide. Effects of drugs on the fetus.	3
18.	Synthetic antibacterial agents with different chemical structures. Representatives of the new generation of cephalosporin antibiotics.	3
19.	Medicines affecting the immune system Vitamins.	3
20.	A drug used to treat diabetes insipidus	3
21.	Comparative analysis of iron-sparing drugs	3
22.	Simple insect repellents. Insect repellents for worms.	3
23.	Drugs against malignant tumors.	3
24.	Medicines affecting leukotriene receptors.	2

Main literature	
1.	Karen Whalen. Pharmacology. Textbook. «Lippincott illustrated reviews», 6th edition, 2015.
2.	Allaeva M.J., Xakimov Z.Z., Ismailov S.R., Aminov S.S., Mustanov B.T. Pharmacology. 2020. (e-book).
3.	D.A. Kharkovich. Pharmacology. Textbook. Moscow, 2017.
4.	Azizova S.S. Pharmacology. Volume 2006.
Additional literature	
5.	Kharkevich, D. A. (2010). Pharmacology: Textbook. Moscow: Meditsina. 750 p.
6.	Ebadi, M. (1996). *Pharmacology: Textbook* (3rd ed.). Boston, New York, Toronto, London.
7.	*Vidal: Medicinal Products in Uzbekistan. Reference Book.* (2010). Moscow: AstraPharmService.
8.	Whalen, K. (2015). *Pharmacology: Lippincott Illustrated Reviews* (6th ed.). Lippincott Williams & Wilkins.
9.	Aliev, Kh. U., & Allaeva, M. J. (2011). *Clinical Pharmacy: Textbook.* Tashkent.
10.	Khakimov, Z. Z., Mustanov, T. B., & Payzieva, L. A. (2016). *Antibacterial Agents: Study Guide.* Tashkent.

The following criteria are recommended in monitoring the student's mastery of the subject:

100 -point system	**5-point system**	**Grading is conducted according to a 100-point scale, correlated with a 5-point system.** ***A student's grade reflects the extent to which their knowledge, skills, and independent work meet the following requirements:***
90 - 100	5	• Provides a comprehensive and well-structured response enriched with additional information from diverse sources, exceeding the program requirements. • Demonstrates full mastery of the recommended literature and familiarity with supplementary materials. • Completes all assigned tasks promptly and with high quality. • Solves situational problems creatively, offering precise, logically substantiated answers. • Actively engages in discussions and debates, confidently defends opinions, and participates creatively in interactive activities. • Integrates knowledge from related disciplines (anatomy, physiology, biochemistry) to formulate independent conclusions and decisions. • Practical skills: demonstrates complete mastery in histological diagnostics, accurately identifies and justifies structures, and produces schematic drawings with understanding.

		• Independent work: produces logically structured synopses, abstracts, and scientific papers; gathers and analyzes data from primary and additional sources (monographs, scientific articles, electronic libraries). • Research activity: conducts independent experiments, processes results statistically, and formulates precise, logically reasoned conclusions. Scientific articles, theses, or presentations are based on both experimental findings and literature analysis.
70 - 89,9	4	– Provides a complete, logically reasoned answer within program boundaries. – Fully masters main literature, partially familiar with supplementary sources. – Completes tasks on time and provides substantiated answers to situational problems. – Actively participates in discussions, debates, and interactive games. – Practical skills: performs step-by-step histological analysis accurately, justifies findings, and produces schematic representations. – Independent work: prepares structured synopses and abstracts using both main and supplementary sources; text is logical, conclusions are correct, and creative ideas are presented. – Research activity: conducts independent experiments, processes data, and develops logical conclusions supported by literature.
60 - 69.9	3	– Provides answers covering ~60–70% of the program. – Masters main literature but shows incomplete understanding of additional questions. – Makes errors in situational problem-solving; participates weakly in interactive activities. – Practical skills: performs diagnostics but with mistakes; structure identification lacks substantiation. – Independent work: synopses lack systematic presentation; abstracts reveal the topic but with shortcomings.
0 - 59,9	2	– Provides answers covering only 30–40% of the program, with no mastery of the main literature. – Demonstrates confused understanding of organ structure and function. – Fails to solve situational problems and complete tasks on time. – Practical skills: unable to identify or describe structures in specimens. – Independent work: fails to prepare synopses or reports; cannot complete creative tasks.

Information about the module teacher

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This Syllabus was approved by the minutes of the meeting №9 of the Educational and Methodical Council of Tashkent State Medical University dated 27.05, 2025.

This Syllabus was approved by the minutes of the meeting of the "Pharmacology" department of 12, 2025.

Head of the educational and methodological department **F.Kh. Azizova**

Dean of the faculty **K.E.Shomurodov**

Head of the department **M.J. Allayeva**