Federal State Autonomous Educational Institution of Higher Education
PEOPLES' FRIENDSHIP UNIVERSITY OF RUSSIA
NAMED AFTER PATRICE LUMUMBA
RUDN University

Institute of Medicine
educational division (faculty/institute/academy) as higher education programme developer

COURSE SYLLABUS

Clinical Pharmacology
course title

Recommended by the Didactic Council for the Education Field of:

31.05.03 Dentistry
field of studies / speciality code and title

The course instruction is implemented within the professional education programme of higher education:

Dentistry
higher education programme profile/specialisation title

2024-2025

1. COURSE GOAL(s).

The goal of the course "Clinical Pharmacology" is to equip students with the knowledge and practical skills of choosing and prescribing effective, safe and economically reasonable drugs in order to be able to use rational and personalized pharmacotherapy based on the authentic data on pharmacokinetics, pharmacodynamics, drug interactions, adverse drug reactions, pharmacogenetics, pharmacoeconomics, pharmacoepidemiology and principles of evidence-based medicine.

2. REQUIREMENTS FOR LEARNING OUTCOMES

Mastering the course (module) "Clinical pharmacology" is aimed at the development of the following competences /competences in part: (GPC)-6, (PC)-2.

Table 2.1. List of competences that students acquire through the course study

Competence code	**Competence descriptor**	**Competence formation indicators** (within this course)
GPC-6	Being able to prescribe non-drug and drug treatment, monitor its efficacy and safety when solving professional tasks	GPC-6.1. Developing a plan for dental disease treatment taking into account the diagnosis, age and clinical picture in accordance with the current procedures for the provision of medical care, clinical guidelines (treatment protocols) on the provision of medical care taking into account the medical care standards.
		GPC-6.3. Assessing the possible side effects of taking medicinal drugs.
		GPC-6.5. Organizing the prevention and treatment of complications, side effects, undesirable reactions, including the unforeseen ones, which can arise from diagnostic or medicinal manipulations, use of drugs and (or) medical devices, non-drug treatment at a dental appointment.
		GPC-6.7. Prescribing medicinal drugs, medical devices, taking into account the diagnosis, age and clinical picture, and in accordance with the current procedures for the provision of medical care, clinical guidelines (treatment protocols) on the provision of medical care taking into account medical care standards.
		GPC-6.9. Evaluating the efficacy and safety of using medicinal drugs, medical devices and

		other methods of treatment at a dental appointment.
PC-2	Being able to prescribe, monitor the efficacy and safety of non-drug and drug treatment	PC-2.2. Selecting drugs and medical devices (including dental materials) for dental disease treatment assessing the possible side effects of taking medicinal drugs.
		PC-2.4. Selecting the type of local anesthesia/anesthesia and assessing the possible complications caused by using it.

3. COURSE IN HIGHER EDUCATION PROGRAMME STRUCTURE

The course refers to the core/variable/elective* component of (B1) block of the higher educational programme curriculum.

* - Underline whatever applicable.

Within the higher education programme students also master other (modules) and / or internships that contribute to the achievement of the expected learning outcomes as results of the course study.

Table 3.1. The list of the higher education programme components/disciplines that contribute to the achievement of the expected learning outcomes as the course study results

Competence code	Competence descriptor	Previous courses/modules*	Subsequent courses/modules*
GPC-6	Being able to prescribe non-drug and drug treatment, monitor its efficacy and safety when solving professional tasks	Pharmacology; Internal diseases; General surgery; Surgical diseases; Imaging diagnostics; Psychiatry and narcology; Otolaryngology; Propedeutics; Cariesology and diseases of hard tissues of teeth; Endodontics; Gerontodentistry and diseases of the mucous membranes of the oral cavity; Periodontics; Local anesthesia and anesthesiology in dentistry; Surgery of oral cavity; Diseases of head and neck; Ethics, law and management in dentistry	Oral and gnatic surgery; Implantology and reconstructive surgery of oral cavity; Introduction to medical elementology; Physiotherapy of dental disorders and dental maintenance of cancer patients
PC-2	Being able to prescribe, monitor the efficacy and safety of non-drug and drug treatment	Internal diseases; Imaging diagnostics; Dermatovenerology; Neurology; Obstetrics; Pediatrics; Prevention and community dentistry; Cariesology and diseases of hard tissues of teeth; Endodontics; Gerontodentistry and diseases of	Prosthodontics (simple); Prosthodontics in cases of total absence of teeth; Prosthodontics of tooth rows (complicated);

		the mucous membranes of the oral cavity; Periodontics; Pediatric dentistry; Clinical dentistry; Gnatology and functional diagnostics of temporal mandibular joint; Assistant of dentist (surgeon); Assistant of dentist (therapist); Assistant of dentist (orthopedist); Assistant of dentist (pediatrics)	Pediatric oral surgery; Orthodontics and pediatric prosthodontics; Cancer dentistry and radiation therapy; Oral prosthodontics; Assistant of general practitioner

4. COURSE WORKLOAD AND ACADEMIC ACTIVITIES

The total workload of the course "Clinical Pharmacology" is 2 credits (108 academic hours).

*Table 4.1. Types of academic activities during the periods of higher education programme mastering (**full-time training**)**

Type of academic activities		**Total academic hours**	**Semesters/training modules**
			10
Contact academic hours		*48*	*48*
including:			
Lectures (LC)			
Lab work (LW)		51	51
Seminars (workshops/tutorials) (S)			
Self-studies		*18*	*18*
Evaluation and assessment (exam/passing/failing grade)		*3*	*3*
Course workload	academic hours	**108**	**108**
	credits	**2**	**2**

* To be filled in regarding the higher education programme correspondence training mode.

5. COURSE CONTENTS

Table 5.1. Course contents and academic activities types

Course module title	**Course module contents (topics)**	**Academic activities types**
Module 1 General issues of clinical pharmacology	Subject and tasks of the CP. Pharmacoepidemiology, pharmacoeconomics, their content and significance. Federal Law on Medicines. Stages of clinical trials of new drugs, modern methods of clinical trials. Concepts about controlled clinical trials, principles of evidence-based medicine, its main provisions.	S
	Subject and tasks of clinical	S

Course module title	Course module contents (topics)	Academic activities types
	pharmacokinetics. Pharmacokinetic studies in clinical pharmacology. Pharmacokinetic curve. Types of pharmacokinetic curve. Control over the concentration of drugs in clinical practice (Therapeutic Drug Monitoring), its purpose. The main pharmacokinetic parameters, their role in rational pharmacotherapy. Patient factors influencing bioavailability, distribution, metabolism and excretion of drugs. Principles of dosing drugs.	
	Clinical pharmacodynamics. Basic concepts. The difference between drugs in pharmacological action. Pharmacological and pharmacodynamic "targets". Pharmacodynamic and clinical efficacy of drugs. Criteria for assessing pharmacodynamic and clinical efficacy.	S
	The concept of interaction of drugs, types of interaction (pharmacokinetic, pharmacodynamic). Results of drug interaction. Principles of rational combination of drugs.	S
	Modern concepts and terms in the field of drug safety. Methods of detection, forecasting, prevention and correction of ADRs. Prescription of drugs to pregnant and breast-feeding women, classification of risk. General principles of increasing the safety of pharmacotherapy in elderly patients. Fundamentals of Pharmacovigilance.	S
Module 2 Clinical and pharmacological approaches to the choice and use of medications in dental diseases and emergency conditions.	Clinical pharmacology of antibiotics. Clinical pharmacology of synthetic antimicrobial agents. Principles of rational anti-infection therapy. Targeted and empirical therapy of 5aroxys-face infections. Prescription of drugs in risk groups. Informing and instructing patients. Monitoring the effectiveness and safety of the treatment. Rational combinations.	S
	Clinical pharmacology of antimycotic drugs. Clinical pharmacology of antiviral drugs. Prescription of drugs in risk groups. Informing and instructing patients.	S

Course module title	Course module contents (topics)	Academic activities types
	Monitoring the effectiveness and safety of the treatment.	
	Clinical pharmacology of antiseptics. Frequency and features of application in the treatment of odontogenic and neodontogenic infections. Features of the use of antiseptics in patients from risk groups. Rational and irrational combinations of antiseptics. Clinical pharmacology of irrigation agents and chelate agents. Compatibility of solutions during irrigation.	S
	Clinical pharmacology of local anesthetics (LA). Preventive measures and control of the safety of the use of LA. Interaction of LA with drugs of other pharmacological groups. Selection of a specific anesthetic (and vasoconstrictor) for standard dental procedures, as well as in patients with comorbidities, pregnant and lactating women, children, elderlies. Clinical pharmacology of non-narcotic analgesics. Clinical pharmacology of narcotic analgesics Clinical pharmacology of co-analgesics. Basic principles of diagnosis and treatment of acute and chronic pain syndrome. Evaluation of the effectiveness of anesthesia. Analgesia in risk groups.	S
	Clinical pharmacology of NSAIDs. General principles of prescription and dosing of NSAIDs, control measures for long-term use of NSAIDs, risk factors. Drug interactions. Clinical pharmacology of corticosteroids. Methods for assessing the effectiveness and safety of pharmacotherapy with glucocorticoids. Clinical pharmacology of anti-allergic drugs. Principles of selection of drugs in the treatment of allergies. Methods for evaluating efficiency and safety.	S
	Clinical pharmacology of antiplatelets, anticoagulants and fibrinolytics. Tactics of management of patients in dental interventions. Clinical Pharmacology of hemostatics. Principles of treatment and prevention of acute and chronic bleeding. Stopping bleeding	S

Course module title	Course module contents (topics)	Academic activities types
	associated with systemic pathology (cirrhosis, portal hypertension, hemophilia). Rational use of existing drug forms in the practice of a dentist.	
	Clinical pharmacology of antiplatelets, anticoagulants and fibrinolytics. Tactics of management of patients in dental interventions. Clinical Pharmacology of hemostatics. Principles of treatment and prevention of acute and chronic bleeding. Stopping bleeding associated with systemic pathology (cirrhosis, portal hypertension, hemophilia). Rational use of existing drug forms in the practice of a dentist.	S
	Clinical pharmacology of calcium and phosphorus preparations, vitamin D preparations and its metabolites, calcitonin, bisphosphonates, reproductive hormones (estrogens), fluorine preparations, other medicinal products agents affecting the metabolism of calcium and phosphorus.	S
	Principles of diagnosis and selection of drugs in the treatment of the following emergency conditions: anaphylactic shock, hypertensive crisis, angina attack, acute heart failure, aroxysm of supraventricular tachycardia, aroxysm of ventricular tachycardia, pulmonary embolism, asthma attack, gastrointestinal bleeding, keto-acidic coma, hypoglycemic coma, convulsive syndrome, poisoning with opiates.	S

* - to be filled in only for **full** -time training: *LC - lectures; LW - lab work; S - seminars.*

6. CLASSROOM EQUIPMENT AND TECHNOLOGY SUPPORT REQUIREMENTS

Table 6.1. Classroom equipment and technology support requirements

Type of academic activities	Classroom equipment	Specialised educational / laboratory equipment, software, and materials for course study (if necessary)
Self-studies	Classroom for lab work, individual and group consultations, ongoing control	Technical equipment: interactive board SMART with multimedia projector

Type of academic activities	Classroom equipment	Specialised educational / laboratory equipment, software, and materials for course study (if necessary)
	and interim attestation, self-studies equipped with a set of specialized furniture, whiteboard; interactive system SMART.	SMART, laptop HP with stable Internet connection. Software: Microsoft Windows, MS Office 365, MS Teams, Chrome (latest stable release), TUIS system
Lab Work	Classroom for lab work, individual and group consultations, ongoing control and interim attestation, self-studies equipped with a set of specialized furniture, whiteboard	technical equipment: multimedia projector BENQ, laptop HP. Software: Microsoft Windows, MS Office 365, MS Teams, Chrome (latest stable release), TUIS system

7. RESOURCES RECOMMENDED FOR COURSE STUDY

a) Main readings:

1. Clinical Pharmacology / P.N. Bennett, M.J. Brown. - 10th ed.; book in English. - Edinburgh: Churchill Livingstone, 2008. - 694 p.: il. - ISBN 978-0-443-10245-5: 2048.65

b) Additional readings:

1. Basic and Clinical Pharmacology / B. Katzung, S. Masters. - 11th ed.; book in English. - New York: McGraw-Hill, 2009. - 1218 p.: il. - (LANGE Basic Science). - ISBN 978-007-127118-9: 4318.03.
2. S.B. Fitilev, I.I. Shkrebneva, A.V. Vozzhaev. The Fundamentals of Rational Pharmacotherapy (Problem-Based Method of Teaching Clinical Pharmacology or How to Create Your Own Guideline) (study guide in English). Москва: РУДН, 2017. – 85 с.

– *Internet sources*
– 1. Electronic libraries (EL) of RUDN University and other institutions, to which university students have access on the basis of concluded agreements:
– - RUDN Electronic Library System (RUDN ELS) http://lib.rudn.ru/MegaPro/Web
– - EL "University Library Online" http://www.biblioclub.ru
– - EL "Yurayt" http://www.biblio-online.ru
– - EL "Student Consultant" www.studentlibrary.ru
– - EL "Lan" http://e.lanbook.com/
– - EL "Trinity Bridge"
– - …….
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– 2.Databases and search engines:
– - electronic foundation of legal and normative-technical documentation http://docs.cntd.ru/

- - Yandex search engine https:// www .yandex.ru/
- - Google search engine https://www.google.ru/
- - Scopus abstract database http://www.elsevierscience.ru/products/scopus/

*Training toolkit for self- studies to master the course *:*

1. The set of lectures on the course "Clinical Pharmacology"

* The training toolkit for self- studies to master the course is placed on the course page in the university telecommunication training and information system under the set procedure.

8. ASSESSMENT TOOLKIT AND GRADING SYSTEM* FOR EVALUATION OF STUDENTS' COMPETENCES LEVEL UPON COURSE COMPLETION

The assessment toolkit and the grading system* to evaluate the competences formation level (GPC-6, PC-2) upon the course study completion are specified in the Appendix to the course syllabus.

* The assessment toolkit and the grading system are formed on the basis of the requirements of the relevant local normative act of RUDN University (regulations / order).

DEVELOPERS:

Professor of the Department of General and Clinical Pharmacology		S.B. Fitilev
position, department	signature	name and surname
Associate Professor of the Department of General and Clinical Pharmacology		A.V. Vozzhaev
position, department	signature	name and surname
Associate Professor of the Department of General and Clinical Pharmacology		I.I. Shkrebniova
position, department	signature	name and surname

HEAD OF EDUCATIONAL DEPARTMENT:

of General and Clinical Pharmacology		S.K. Zyryanov
position, department	signature	name and surname

HEAD
OF HIGHER EDUCATION PROGRAMME:

First Deputy Director of MI for Academic Affairs		Iv.V.Radysh
position, department	signature	name and surname