



Pharmacology

1. IMPRINT

Academic Year	2026/2027
Department	Faculty of Dental Medicine
Field of study	English Dentistry Division
Main scientific	Medical Science
Study Profile	General academic
Level of studies	Uniform Master's studies
Form of studies	Stationary
Type of module / course	Obligatory
Form of verification of learning outcomes	Exam
Educational Unit / Educational Units	Department of Experimental and Clinical Pharmacology Centre for Preclinical Research and Technology CePT, Banacha 1b, 02-927 Warsaw, tel. (+48) 22 1166160 e-mail: farmakologia@wum.edu.pl

Załącznik nr 4C do Procedury opracowywania i okresowego przeglądu programów studiów
(stanowiącej załącznik do zarządzenia nr 68/2024 Rektora WUM z dnia 18 kwietnia 2024 r.)

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2. BASIC INFORMATION

Year and semester of studies	III year, V and VI semester	Number of ECTS credits	5.5
FORMS OF CLASSES		Number of hours	ECTS credits calculation
Contacting hours with academic teacher			
Lecture (L)		15	0.5
Seminar (S)		30	1.0
Discussions (D)			
e-learning (e-L)			
Practical classes (PC)		30	1.5
Work placement (WP)			
Unassisted student's work			
Preparation for classes and completions		65	2.5

3. COURSE OBJECTIVES

O1	Learning the facts, concepts, and principles that form the basis of rational pharmacotherapy.
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O2	Understanding the basic benefits, adverse drug reactions and toxicity associated with pharmacotherapy
4. STANDARDS OF LEARNING – DETAILED DESCRIPTION OF EFFECTS OF LEARNING	
Code and number of effect of learning in accordance with standards of learning	Learning outcomes in the area of:
Knowledge – Graduate* knows and understands:	
C.W5.	basic of disinfection, sterilization, and aseptic menagment;
C.W10.	development of drug resistance;
C.W20.	mechanisms of the activity, dosage, and pharmacokinetics of drugs;
C.W21.	indications and contraindications for the use of drugs, their dosage, adverse and toxic effects, and interactions between drugs;
C.W22.	principles of topical and general treatment of bacterial, viral, fungal, and parasitic infections;
C.W23.	principles of topical and general antibiotic therapy and scientific recommendations for the prevention and control of infections, including the use of antibiotics and antiseptics in daily dental practice;
C.W24.	principles of preventing and reducing pain and anxiety in patients in various clinical situations;
C.W25.	pharmacotherapy used in various life-threatening conditions;
C.W26.	principles and provisions of law on prescribing ready-made and compounded medications;
Skills– Graduate* is able to:	

5. ADDITIONAL EFFECTS OF LEARNING	
Number of effect of learning	Effects of learning i time
Knowledge – Graduate knows and understands:	
K1	-
Skills– Graduate is able to:	
S1	-
Social Competencies – Graduate is ready for:	
SC1	-

6. CLASSES		
Form of class	Class contents	Effects of Learning
Lectures	L 1 – Lecture 1. Sources of information about drugs. During the lecture, the student learns which sources of information about drugs are reliable and which are less reliable. They become familiar with drug regulatory agencies and the basics of drug information contained in registration documents. The student also learns where to obtain the drug information necessary for everyday practice.	C.W20., C.W21.
	L 2 – Lecture 2. Treatment in shocks. The student learns about the types of shock and the principles of its diagnosis, as well as proper selection of treatment methods and management of shock depending on its etiology.	C.W20., C.W21., C.W25.
	L 3 – Lecture 3. Drugs used in the treatment of headaches. The student learns about the basic types of headaches and the drugs used for headache relief as well as migraine prophylaxis.	C.W20., C.W21.
	L 4 – Lecture 4. Drugs used in ischemic heart disease. During the lecture, the various groups of drugs used in ischemic heart disease are presented, both for treatment and for primary and secondary prevention, along with the general principles of prevention.	C.W20., C.W21., C.W25.
	L5 – Lecture 5. Pharmacotherapy during pregnancy. The student learns about the principles of treatment during pregnancy and where to obtain information regarding the safety of drug use in pregnancy.	C.W20., C.W21.
	L6 – Lecture 6. Plant-derived raw materials and dietary supplements. During the lecture, the most important and widely recognized plant substances used for medicinal purposes are presented, along with the limitations associated with their use and potential risks, including interactions with synthetic pharmaceutical products. Indications for the use of plant-derived products are also discussed. The student learns the main differences between medicinal products and dietary supplements.	C.W20., C.W21.
	L7 - Lecture 7. Antiarrhythmic drugs The student learns about the groups of antiarrhythmic drugs and the basic principles of treating arrhythmias, with particular attention to the adverse effects of such treatment.	C.W20., C.W21., C.W25.
	L8 – Lecture 8. Treatment of lipid disorders The student learns about the principles of treating lipid disorders and the drugs used in such therapy.	C.W20., C.W21.
Seminars	S1 – Seminar 1. General pharmacology. Rules of pharmacokinetics and pharmacodynamics. Pharmacokinetic parameters defined by the acronym LADME (Absorption, Distribution, Metabolism, and Excretion), principles and mechanisms of drug action, and the basics of nomenclature in pharmacokinetics and pharmacodynamics.	C.W20.

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S2 – Seminar 2. Pharmacology of gastrointestinal tract. Treatment of common gastrointestinal disorders: peptic ulcer disease, diarrhea, constipation, and Helicobacter pylori eradication.	C.W20., C.W21.
S3 – Seminar 3. The respiratory system drugs. Drug groups used in bronchial asthma and chronic obstructive pulmonary disease. Information about expectorants and mucolytics. Their mechanisms of action and adverse effects.	C.W20., C.W21.
S4 – Seminar 4. Neuromuscular blocking agents. Drugs used in general anaesthesia. Principles of management in premedication for general anesthesia and during general anesthesia. Drug groups used in anesthesiology, their mechanisms of action, efficacy, and adverse effects.	C.W20., C.W21.
S5 – Seminar 5. Drugs used in hypertension. Principles of hypertension therapy. Drug groups used in monotherapy and combination therapy for hypertension. Mechanisms of drug action, adverse effects, and contraindications.	C.W20., C.W21.
S6 – Seminar 6 - Non-narcotic analgesic drugs Basic indications for the use of narcotic analgesics. Mechanism of action, adverse effects, and management of overdose.	C.W20., C.W21., C.W24.
S7 – Seminar 7 - Narcotic analgesic drugs. Basic indications for the use of narcotic analgesics. Mechanism of action, adverse effects, and management of overdose.	C.W20., C.W21., C.W24.
S8-Seminar 8 – Cholinergic pharmacotherapy. Groups of drugs that stimulate and inhibit the parasympathetic nervous system. Indications, contraindications, and adverse effects of each drug group.	C.W18., C.W19.
S9 -Seminar 9- Drugs acting on sympathetic nervous system. Groups of drugs stimulating and inhibiting the sympathetic nervous system. Indications, contraindications, and adverse effects of drug groups acting on both alpha and beta receptors.	C.W20., C.W21.
S10-Seminar 10 – Drugs used in the treatment of diabetes. Drugs used in the treatment of thyroid disorders. Principles of the treatment of type 1 and type 2 diabetes mellitus. Types of insulin, principles of their use, and adverse effects. Classes of non-insulin antidiabetic drugs, their mechanisms of action, and adverse effects. Classes of drugs used in the treatment of hypothyroidism and hyperthyroidism.	C.W18., C.W19.
S11-Seminar 11 – Glucocorticosteroids. Oral contraceptives. Mechanism of action of glucocorticoids, indications for their use, and adverse effects. Types of oral contraceptive therapy, adverse effects, and contraindications to their use.	C.W18., C.W19.
S12-Seminar 12 - Drugs used in heart failure. Principles of heart failure therapy. Drug groups used in heart failure, their mechanisms of action, and adverse effects.	C.W18, C.W19.

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	S13-Seminarium 13 – Antihistamines and other drugs used in the treatment of allergic disorders. First- and second-generation H1 antihistamines and their adverse effects.	C.W18, C.W19.
Practical classes	PC1-Practical classes 1- Disinfectants and antiseptics. Drugs used in dentistry. Basic principles of using disinfectants and antiseptics. Mechanisms of action of various drug groups and their adverse effects. Groups of drugs used in dentistry, their mechanisms of action, and adverse effects.	C.W5.
	PC2-Practical class 2- Dental chemotherapy (antibacterial drugs acting on the bacterial cell wall). Mechanisms of drug resistance. Interpretation of antibiograms. Basic principles of chemotherapy use in dentistry. Groups of antibacterial drugs acting on the bacterial cell wall, including detailed mechanisms of action, antibacterial spectrum, and adverse effects. Principles of interpreting antibiograms.	C.W10., C.W20., C.W21., C.W22., C.W23.
	PC3-Practical class 3- Dental chemotherapy (antibacterial drugs acting on protein synthesis). Mechanisms of drug resistance. Interpretation of antibiograms. Groups of antibacterial drugs acting on protein synthesis, including detailed mechanisms of action, antibacterial spectrum, and adverse effects. Principles of interpreting antibiograms.	C.W10., C.W20., C.W21., C.W22., C.W23.
	CP4- Practical class 4 – Other antibacterial drugs. Mechanisms of drug resistance. Interpretation of antibiograms. Antibacterial drugs acting on nucleic acids and the cell membrane, including detailed mechanisms of action, antibacterial spectrum, and adverse effects. Principles of interpreting antibiograms.	C.W10., C.W20., C.W21., C.W22., C.W23.
	PC5 – Practical class 5 – Antifungal and antiparasitic drugs. Classes of drugs used in the treatment of fungal and parasitic infections, including their detailed mechanisms of action, spectra of activity, and adverse effects.	C.W10., C.W20., C.W21., C.W22., C.W23.
	PC6 – Practical class 6 - Antiviral drugs. Groups of drugs used in viral diseases, including detailed mechanisms of action, spectrum, and adverse drug reactions.	C.W10., C.W20., C.W21., C.W22., C.W23.
	PC7 – Practical class 7 - Drugs acting on the central nervous system (anxiolytics, antidepressants, and antiepileptic drugs). Classes of drugs used in the treatment of anxiety. Mechanism of action of benzodiazepines, principles of their use, and management of overdose. Classes of antidepressant and antiepileptic drugs, their mechanisms of action, and adverse effects.	C.W20., C.W21., C.W24.
	PC8- Practical class 8 – Drugs acting on the central nervous system (typical and atypical	C.W20., C.W21.

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	antipsychotics and drugs used in the treatment of Parkinson's disease). Mechanisms of action of typical and atypical antipsychotics and adverse effects associated with the use of individual classes of antipsychotic drugs. Principles of the treatment of Parkinson's disease, classes of drugs used, and their adverse effects.	
	PC9 – Practical class 9 – Local anaesthetics. Principles of the use of local anaesthetics. Classes of drugs used for local anaesthesia, their mechanisms of action, and adverse effects.	C.W20., C.W21., C.W24.
	PC10 – Practical class 10 - Treatment of anaemia. Drugs affecting blood coagulation. Principles of the treatment of iron-deficiency anaemia and megaloblastic anaemia. Classes of drugs used in anticoagulant, antiplatelet, and fibrinolytic therapy. Management of bleeding and classes of drugs used to control excessive bleeding.	C.W20., C.W21.
	PC11 – Practical class 11 – Drug-induced oral lesions. Drugs used in bone diseases and disorders of mineral metabolism. Types of adverse drug reactions. Classes of drugs associated with drug-induced oral lesions and the types of lesions they cause. Basic principles of the treatment of osteoporosis and other bone disorders, including the mechanisms of action and adverse effects of the drugs used.	C.W20., C.W21.
	PC12 – Practical class 12 – Management of medical emergencies. Basic principles of the treatment of selected medical emergencies. Types of drugs used in specific emergency clinical situations, including their indications, contraindications, adverse effects, and dosing.	C.W20., C.W21., C.W25.
	PC13 - Practical class 13 - Basics of prescription writing. Rules for prescribing commercial medicinal products and magistral preparations in the electronic and paper form. Examples of how to write specific medications on a prescription.	C.W26.

7. LITERATURE

Obligatory

Katzung's Basic and Clinical Pharmacology, 16th Edition, McGraw Hill Education, 2023.

Supplementary

Goodman and Gilman's The Pharmacological Basis of Therapeutics, red. Brunton L i wsp., 14th Ed., McGraw Hill Education, 2023.

Rang & Dale's Pharmacology, 10th Edition, James M. Ritter & Rod J. Flower & Graeme Henderson & Yoon Kong Loke & David MacEwan & Emma Robinson & James Fullerton, 2023.

8. VERIFYING THE EFFECT OF LEARNING

Code of the course effect of learning	Ways of verifying the effect of learning	Completion criterion
C.W5., C.W9., C.W18., C.W19., C.W20., C.W21., C.W22.,	After 5 th and 6 th semester there are the assessment tests. The first term and retake are single-choice test. The third term (second retake) is oral. The passed tests after 5 th and 6 th semesters entitles the student to take an exam.	Grade Criterion 2.0 (Fail) 50% or below 3.0 (Satisfactory) above 50% to

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C.U2., C.U8.	The exam first term is single choice test. The second term (retake) is single choice test. The third term (second retake) is oral. In the case of a second retakes, the student may submit a request to the Dean for an observer designated by the Student Government to be present during the assessment or examination. The Dean may grant permission for the student to take examination/course assessment before an examination board if the student submits justified objections concerning the manner in which the original assessment or examination was conducted.	59% 3.5 (Satisfactory Plus) above 59% to 70% 4.0 (Good) above 70% to 78% 4.5 (Good Plus) above 78% to 90% 5.0 (Very Good) above 90%
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9. ADDITIONAL INFORMATION

1. Seminars and practical classes are obligatory.
2. Attending at seminars and lectures must be met with condition of being listed on the student list provided by Dean's Office or having written consent by designated Dean or Deputy Dean.
3. In the case of a transfer from another university, it is necessary to promptly arrange with the Course coordinator the conditions for making up curriculum differences in the subject of pharmacology.
4. Applications regarding conditional participation in pharmacology classes, partial completion of the course, curriculum differences, or recognition of prior course may be submitted no later than during the first week of the academic classes. Applications submitted at a later date will be considered only in exceptional circumstances.
5. Applications for the recognition of a grade from another program may be considered only after prior approval by the Vice-Dean for Student Affairs, and no later than within the first two weeks of the academic classes.
6. Seminars missed for a justified reason must be caught up after arranging a date with the teacher conducting the classes. The time allowed for making up the missed classes is one month from the recorded date of absence.
7. All didactic materials will be provided in the electronic version by teachers responsible for particular topics. These materials will be delivered in the web site teams within 7 days after seminar or lecture.
8. All applications concerning the didactic problems should be addressed to Head of the Department: Professor Mirowska-Guzel and directed to the Coordinator. The decision is made by Head of the Department in the consultation with the Coordinator of the Pharmacology.
9. Office: Department of Experimental and Clinical Pharmacology, Centre of Preclinical Research and Technology CePT, Medical University of Warsaw, Banacha 1b, 02-097 Warsaw, Poland; open: Monday – Friday: 9 AM – 3 PM. Phone: (+48) 22 116 61 60, fax: (+48) 22 116 62 02 ; e-mail: farmakologia@wum.edu.pl

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ATTENTION

The final 10 minutes of the last class in the block/semester/year should be allocated to students' Survey of Evaluation of Classes and Academic Teachers