

## SUBJECT CARD

**Faculty of Medicine and Health Sciences**  
**Field of study: Medicine**  
**Mode of study: Full-time**  
**Level of study: Uniform master`s study**  
**Profile of study: General Academic**  
**Academic Year: 2023/2024**

PHARMACOLOGY I	
<b>SUBJECT NAME</b>	Pharmacology
<b>NUMBER OF ECTS POINTS</b>	7
<b>LANGUAGE</b>	English
<b>TEACHERS</b>	Prof. dr hab. n. med. Tadeusz F. Krzemiński dr n.med. Michał Paluch dr n. med. Magda Stankiewicz dr n. med. Marcin Maruszewski
<b>PERSON RESPONSIBLE</b>	Prof. dr hab. n. med. Tadeusz F. Krzemiński
NUMBER OF HOURS	
<b>LECTURES</b>	45 hours (1 hour = 45 minutes)
<b>SEMINARS</b>	36 hours
<b>EXERCISES</b>	9 hours
GENERAL OBJECTIVES	
<b>OBJECTIVE 1</b>	The aim of teaching the subject "General Pharmacology" is to acquaint students with particular groups of drugs used in pharmacotherapy of diseases, in terms of their mechanisms of action, indications and contraindications for use, characteristic adverse reactions.
<b>OBJECTIVE 2</b>	The aim of teaching the course "General Pharmacology" is also to prepare Students to gain practical skills in performing simple pharmacokinetic calculations, calculating doses of various forms of drugs and the technique of writing prescriptions for finished and maintain drugs. During the course, Students are also introduced to the principles of using pharmacological reference books and databases of medicinal products.
LEARNING OUTCOMES	
<b>MK1:</b>	The student characterises the different groups of remedies.
<b>MK2:</b>	Students know the main mechanisms of action of drugs and their age-dependent transformations in the body.
<b>MK3:</b>	Students identify the impact of disease processes on drug metabolism and elimination.
<b>MK4:</b>	Students is familiar with the more important adverse drug reactions, including those resulting from drug interactions.
<b>MS1:</b>	Students perform simple pharmacokinetic calculations.
<b>MS2:</b>	The student correctly prepare records of all formulations of medicinal substances.

<b>MS3:</b>	The student uses pharmaceutical reference books and databases on medicinal products.
<b>INTRODUCTORY REQUIREMENTS</b>	
	Knowledge of anatomy, biochemistry, physiology, pathophysiology, microbiology
<b>COURSE PROGRAM</b>	<b>DETAILED DESCRIPTION OF THE TOPIC BLOCKS</b>
<b>LECTURE 1 (3h)</b>	Discussion of the course regulations. Basics of pharmacokinetics and pharmacodynamics. Molecular mechanisms of drug action. Drug metabolism. Membrane transporters and drug response. Toxicity and drug poisoning. Pharmacogenetics.
<b>LECTURE 2 (4h)</b>	Toxicity and drug poisoning. Pharmacogenetics.
<b>LECTURE 3 (4h)</b>	General principles of antimicrobial treatment. Sulfonamides. Penicillins and cephalosporins. Aminoglycosides. Protein synthesis inhibitors and other drugs.
<b>LECTURE 4 (4h)</b>	Chemotherapy for tuberculosis. Drugs used in fungal infections. Antiviral drugs. Drugs against retroviruses and therapy for viral liver infection and HIV.
<b>LECTURE 5 (3h)</b>	Neurotransmission in the autonomic and somatic nervous system. Muscarinic receptor agonists and antagonists and acetylcholinesterase inhibitors. Nerve junction agents.
<b>LECTURE 6 (4h)</b>	Adrenergic receptor agonists and antagonists. Drugs affecting the serotonin and dopamine systems.
<b>LECTURE 7 (4h)</b>	Drugs to treat cardiovascular disease: diuretics, angiotensin-renin antagonists. Medicines used to treat ischaemic heart disease.
<b>LECTURE 8 (3h)</b>	Medicines used to treat hypertension, circulatory insufficiency, cardiac arrhythmias, pulmonary hypertension.
<b>LECTURE 9 (4h)</b>	Medicines used to treat hypercholesterolemia and lipidaemia. Medicines used in the treatment of COPD and bronchial asthma.
<b>LECTURE 10 (3h)</b>	Neurotransmission in the CNS. Antidepressants, drugs used in psychosis. Sedatives, sleeping pills and myorelaxants.
<b>LECTURE 11 (3h)</b>	Antiplatelet drugs, anticoagulants, fibrinolytic drugs. Drugs used in anaemias and other blood disorders.
<b>LECTURE 12 (3h)</b>	Non-steroidal anti-inflammatory drugs, analgesics and antipyretics. Drugs used to treat gout. Opioid analgesics. Treatment of pain.
<b>LECTURE 13 (3h)</b>	Drugs used in the treatment of epilepsy. Drugs used in Parkinson's disease. Drugs used in degenerative CNS diseases. Steroids of the adrenal cortex. Medicines used in the treatment of diabetes mellitus. Medicines used to treat endocrine pancreatic diseases. Medicines used in the treatment of thyroid diseases.
<b>EXERCISES 1 (3h)</b>	Calculation and interpretation of basic pharmacokinetic parameters.
<b>EXERCISES 2 (3h)</b>	Prescription - principles of prescribing ready-made and master drugs part I.
<b>EXERCISES 3 (3h)</b>	Prescription - principles of prescribing ready-made and master drugs part II
<b>SEMINAR 1 (3h)</b>	Discussion of the course regulations. Basics of pharmacokinetics and pharmacodynamics. Molecular mechanisms of drug action. Drug metabolism. Membrane transporters and drug response. Toxicity and drug poisoning. Pharmacogenetics.
<b>SEMINAR 2 (3h)</b>	General principles of antimicrobial therapy. Sulfonamides. Penicillins and cephalosporins. Aminoglycosides. Protein synthesis inhibitors and other drugs.
<b>SEMINAR 3 (3h)</b>	Chemotherapy for tuberculosis. Drugs used in fungal infections. Antiviral drugs. Drugs against retroviruses and therapy for viral liver infection and HIV.
<b>SEMINAR 4 (3h)</b>	Neurotransmission in the autonomic and somatic nervous system. Muscarinic receptor agonists and antagonists and acetylcholinesterase inhibitors. Nerve junction agents.

	Adrenergic receptor agonists and antagonists. Drugs affecting the serotonin and dopamine systems.
<b>SEMINAR 5 (3h)</b>	Drugs to treat cardiovascular disease: diuretics, angiotensin-renin antagonists. Medicines used to treat ischaemic heart disease, hypertension, circulatory insufficiency, cardiac arrhythmias, pulmonary hypertension.
<b>SEMINAR 6 (3h)</b>	Medicines used to treat hypercholesterolemia and lipidaemia. Medicines used in the treatment of COPD and bronchial asthma . General anaesthetics. Local anaesthetics. Agents acting on skeletal homeostasis. Antihistamines. Bradykinin, autacoids and PAF. Immunoglobulins and vaccines. Pituitary and hypothalamic hormones. Estrogens and progestagens. Androgens.
<b>SEMINAR 7 (3h)</b>	Antiplatelet drugs, anticoagulants, fibrinolytic drugs. Drugs used in anaemias and other blood disorders.
<b>SEMINAR 8 (3h)</b>	Neurotransmission in the CNS. Antidepressants, drugs used in psychosis. Sedatives, sleeping pills and myorelaxants.
<b>SEMINAR 9 (3h)</b>	Drugs used in the treatment of epilepsy. Drugs used in Parkinson's disease. Drugs used in degenerative CNS diseases.
<b>SEMINAR 10 (3h)</b>	Non-steroidal anti-inflammatory drugs, analgesics and antipyretics. Drugs used to treat gout. Opioid analgesics. Treatment of pain.
<b>SEMINAR 11 (3h)</b>	Steroids of the adrenal cortex. Medicines used in the treatment of diabetes mellitus. Medicines used to treat endocrine pancreatic diseases. Drugs used in the treatment of thyroid diseases.
<b>SEMINAR 12 (3h)</b>	Medicines used in gastrointestinal diseases. Chemotherapy of protozoan infections, amoebiasis, lamblia, cysticercosis. Chemotherapy in medical helminthology. Principles of treatment of neoplastic diseases. Antineoplastic drugs. Immunosuppressive drugs, tolerogens and immunostimulants. Steroids used in neoplastic diseases. <b>Resit of overdue seminars.</b>
<b>DIDACTIC METHODS (APPLIED)</b>	
<b>LECTURES</b>	Multimedia presentations, discussion.
<b>SEMINARS</b>	Multimedia presentations, discussion, brainstorming, group work, problem solving sessions.
<b>STUDENT'S WORKLOAD</b>	
<b>CONTACT HOURS WITH THE ACADEMIC TEACHER</b>	Hours specified in the study plan (lectures + tutorials): 84 hours
<b>HOURS WITHOUT THE PARTICIPATION OF THE ACADEMIC TEACHER</b>	Preparation for classes, including the study of compulsory and recommended textbooks: 126 hours
<b>TOTAL NUMBER OF HOURS FOR THE COURSE</b>	210 hours
<b>CLASS REGULATIONS</b>	
<b>LECTURES</b>	Attendance at lectures is compulsory, and Students will be asked to sign the attendance register each time.

	Due to the issues discussed during the lectures being a compilation of content beyond the standard recommended textbooks, attendance at lectures should be a priority for the Student.
<b>SEMINARS</b>	<p>Classes are compulsory and attendance at each class is checked. Two excused absences are allowed, which must be immediately excused to the group leader.</p> <p>The student comes prepared for the seminar, according to the given schedule and based on the lecture and the current and recommended textbooks.</p> <p>The method of conducting the seminar depends on the instructor. The teacher tests the knowledge of students on issues that are the subject of the seminar by evaluating each student and entering the evaluation in the established for this purpose individual student card.</p> <p>In the case of not getting a credit for the tutorial, there is a possibility to make up the credit in the only foreseen date - the tutorial of the backlog (see the schedule).</p>
<b>SEMINARS</b>	<p>At the end of the course, the marks are used to determine the final grade, which is the arithmetic mean of the marks obtained in the laboratory sessions.</p> <p>To be allowed to take the exam on the first day of the course it is necessary to pass all the assessments.</p> <p>The applied grading scale: very good (5.0), plus good (4.5), good (4.0), fairly/satisfactory good (3.5), sufficient/satisfactory (3), failing (2).</p> <p>Failure to pass the course due to absence is recorded on the course form with a zero (0).</p>
<b>METHOD OF ASSESEMENT</b>	
<b>IN TERMS OF KNOWLEGDE</b>	Oral examinations or written one-choice tests in conversation classes.
<b>IN TERMS OF SKILLS</b>	Checking skills when analysing within the given range.
<b>IN TERMS OF SOCIAL COMPETENCE</b>	Activity in class.
<b>DESCRIPTION OF THE REQUIREMENTS FOR PASSING THE COURSE</b>	
<b>FORMATIVE</b>	<p><b>Revision Colloquium</b></p> <p>In the case of not passing any of the tutorials (and as a consequence not being allowed to take the exam on the first date), the student must obtain the aforementioned admission by taking a resit test, which is held before the exam on the second date (in the resit session). The re-sit test is conducted orally by the subject coordinator. A positive result allows the student to take the exam on the second date (re-take).</p>
<b>SUMMATIVE (I &amp; II terms)</b>	<p><b>Exams</b></p> <p>In the first term, the examinations will be in the form of a test (100 single-choice questions, where the Student can achieve a maximum of 100 points), and in the second term, they will be conducted orally by the instructors.</p>
<b>ASSESSMENT CRITERIA FOR THE TEST</b>	
<b>Satisfactory 3.0</b>	60% - 65%
<b>Satisfactory plus 3.5</b>	66% - 70%
<b>Good 4.0</b>	71% - 80%
<b>Good plus 4.5</b>	81% - 86%
<b>Very good 5.0</b>	87% - 100%
<b>BASIC MONOGRAPHS</b>	

1. Bertram G. Katzung, Susan B. Masters, Anthony J. Trevor, McGraw-Hill Medical - Basic and Clinical Pharmacology 14e (Int'l Ed), 2018.

#### **SUPPLEMENTARY MONOGRAPHS**

1. The Pharmacological Basis of THERAPEUTICS thirteenth edition, Laurence L. Brunton [i in.], McGraw-Hill Medical Publishing Division, 13<sup>th</sup> Ed. 2018