

<b>University:</b> <i>The Slovak Medical University, Bratislava</i>	
<b>Faculty:</b> <i>Faculty of Medicine</i>	
<b>Subject code:</b> <i>GM022A</i>	<b>Subject name:</b> <i>Pharmacology (1)</i>
<b>Type, extent and method of educational activities:</b> <i>Form of teaching : lectures 42 hrs/3 hrs weekly  Seminars 28 hrs/2 hrs weekly  Recommended range (hours): 100 per semester  Study method: fulltime</i>	
<b>Nr.of credits:</b> 4	
<b>Recommended semester/trimester of the study:</b> 6th	
<b>Study degree:</b> 1st and 2nd	
<b>Prerequisites:</b> <i>Evaluation method and conditions for passing the course: Attendance - CE   100% seminar attendance is required., successful passing of prelim. tests, (min 60%) and presenting solution for a specific pharmacotherapeutic case (see syllabus) related to clinical practice.</i>	
<b>Educational results:</b> <i>The student will acquire basic knowledge in the field of general and special pharmacology with aim to develop the necessary knowledge and methodological prerequisites for the study of rational pharmacotherapy in various clinical disciplines and its implementation in clinical practice based on the integration of knowledge and drug-related relationships. The study mainly includes knowledge of the pharmacokinetic and pharmacodynamic properties of drugs, drug life cycle, prescription rules and essentials of pharmacoeconomics</i>	
<b>Brief thesis of the subject:</b> <i>General pharmacology:  Definition and mission of pharmacology and clinical pharmacology. Drug/medication– classification, terminology, registration and drug categories. Clinical trials and good clinical practice. Adverse effects of drugs – classification, reporting. Pharmacovigilance, drug safety. Principles and key definitions of pharmacokinetic parameters. Absorption. Distribution. Bioavailability. Elimination. Biological half life. Drug levels after a single and recurrent dosing administration. Significance and application of the first pass metabolism. Area under the curve. Steady state concentration. Transport mechanisms. Plasma drug concentration. Drug metabolism. Drug biotransformation. Drug elimination. Pharmacodynamics - definition and meaning. Mechanisms of drug action. Cumulation. Tachyphylaxis. Tolerance. Drug receptors. Pharmacogenetics, pharmacogenomics - definition and meaning. Nanopharmacology and state-of-the-art pharmaceutical manufacturing technologies. Biological treatment, biotherapeutics. Application routes, dosage forms. Chronopharmacology. Rational pharmacotherapy concepts. Therapeutic drug monitoring. Drug interactions - principles and clinical significance. Summary of Product Characteristics and Patient Information. State drug policy. Pharmacoeconomics. Principles of pharmacoeconomic evaluation. Drug prescribing, principles, pharmacopoeia. Principles and risks of pharmacotherapy in pregnancy, breastfeeding. Teratogenicity, functional damage to the fetus. Principles and risks of pharmacotherapy in childhood. Principles and risks of pharmacotherapy in geriatrics. Intoxications and their treatment, antidotes. Drug addiction, pharmacotherapy options. Compliance. Irrational pharmacotherapy (homeopathy). Ethical issues in pharmacology.  System pharmacology:  Pharmacology of the autonomic nervous system. Sympathomimetics. Sympatholytics. Alpha / beta-sympathicolitics. Parasympatholytics. Ganglioplegics. Peripheral muscle relaxants. Anesthetics - local, general, combinations. Neuroleptanalgesia and neuroleptanesthesia. Psychotropic drugs. Anxiolytics.</i>	

*Pharmacotherapy of sleep disorders. Antidepressants. Neuroleptics. Psychostimulants and psychodysleptics. Nootropic substances. Central muscle relaxants. Antiparkinsonian drugs. Antiepileptics. Opioid analgesics. Non-steroidal analgesics. Antiphlogistics, antirheumatics. Antiarthritics. Cardiotonics. Non-glycosidic cardiotonics. Antidysrhythmics. Antianginal substances. Hypolipidemics. Antihypertensives, principles of combination of antihypertensives. Diuretics. Vasodilators. Anticoagulant treatment. Fibrinolytics. Antiplatelet agents. Hemorrhology. Anemia treatment.*

**Recommended literature:**

Rang & Dale's Pharmacology; 9th edition; James M. Ritter Rod Flower Graeme Henderson Yoon Kong Loke David MacEwan Humphrey P. Rang; Elsevier Science, 2019

Basic and Clinical Pharmacology; 15th edition; Anthony J. Trevor; McGraw-Hill, 2021

Color Atlas of Pharmacology; 5th edition; Lutz Hein, Heinz Lüllmann, Klaus Mohr; Thieme Publishing Group, 2017

Katzung, B.G., Masters, S.B., Trevor, A.J.: Basic a Clinical Pharmacology, 14th Edition. The McGraw-Hill Companies, Inc., Lange, 2017.

**Language needed to complete the subject:** *English*

*Notes:*

*The course is taught in English.*

**Subject evaluation:**

*Total number of evaluated students:*

A	B	C	D	E	FX

*Teachers:*

*Anna Paul Hrabovská, assoc.prof., PhramD, PhD., guarantor, lecturer, seminar instructor. Ľubica*

*Slobodová, PhramD, lecturer, seminar instructor*

*Zuzana Kiliánová, PhramD ,PhD., lecturer, seminar instructor*

*Mgr. Gabriel Dóka, MPharm., PhD., lecturer, seminar instructor*

*Anna Oleárová, PhramD, PhD., MPH., lecturer, seminar instructor*

*Adela Čorejová, PhramD , PhD., lecturer, seminar instructor*

*Zuzana Javorová Rihová, MDr. PhD., lecturer, seminar instructor*

**Date of last changes:** 17.05.2022

**Approved by:** *person responsible for realization, development and ensuring of the study program quality prof. MUDr. Iveta Šimková, CSc.*

<b>University:</b> <i>The Slovak Medical University in Bratislava</i>	
<b>Faculty:</b> <i>Faculty of Medicine</i>	
<b>Subject code:</b> <i>GM022B</i>	<b>Subject name:</b> <i>Pharmacology (2)</i>
<b>Type, extent and method of educational activities:</b> <i>Form of teaching : lectures 42 hrs/3 hrs weekly  Seminars 28 hrs/2 hrs weekly  Recommended range (hours): 100 per semester  Study method: fulltime</i>	
<b>Nr.of credits:</b> 4	
<b>Recommended semester/trimester of the study:</b> 6th	
<b>Study degree:</b> 1st and 2nd	
<b>Prerequisites:</b> <i>GM022A - Pharmacology (1)</i>	
<b>Subject completion conditions:</b> <i>Evaluation method and conditions for passing the course: Exam</i>  <i>The criteria for successful completion of the course is 100% participation in seminars (internships) and passing the final exam. The final exam in the subject Pharmacology 2 consists of a written and an oral part, which take place on the same day. Successful completion of the written test is a condition for admission to the oral part of the exam.</i> <ul style="list-style-type: none"> <li>• <i>The subject of the written part is an electronic test consisting of multiple choice questions with one correct answer. For successful completion, it is necessary to achieve at least 75% of the maximum number of points.</i></li> </ul> <i>The scale for evaluating the result of the written test is as follows: 100-95% (A), 94-90% (B), 89-85% (C), 84-80% (D), 79-75% (E), &lt; 75% (Fx).</i> <ul style="list-style-type: none"> <li>• <i>The subject of the oral part of the final exam is to answer two randomly generated questions from the list of questions for the exam.</i></li> <li>• <i>The final grades based on the result of the written test and the oral answers of the student</i></li> </ul>	
<b>Results of the education:</b> <i>The goal of the course is to assist the student in developing solid problem solving skills, acquiring basic knowledge in general and special pharmacology and fostering an attitude that will promote patient centered methodological prerequisites for the study of rational pharmacotherapy in various clinical disciplines and its implementation in clinical practice based on the integration of knowledge and drug-related relationships. The study mainly includes knowledge of pharmacokinetic and pharmacodynamic properties of drugs, drug life cycle, prescription rules and basics of pharmacoeconomics.</i> <i>Respiratory system: drugs affecting smooth muscle, motor and airway secretion. Antitussives, expectorants, secretolytics, mucolytics, secretomotorics. Substances affecting surfactant production. Antiasthmatics - bronchodilators, anti-inflammatory substances. Substances that prevent mast cell degranulation. Local and total glucocorticoids. Xanthines. Gastrointestinal system: stomachics, amarae, anorectics, acids, emetics. Antiulcerosis, antacids. H2 - antihistamines, proton pump blockers. Gastrin receptor blockers. Mucoprotective. Anthelcobacterial drugs. Antiemetics. Prokinetics. Digestive enzymes, cholagogas, cholereitics, cholekinetics. Hepatic. Intestinal adsorbents. Obstipanciá. GIT antispasmodics.</i> <i>Hormones and drugs in endocrinology: glucocorticoids - systemic and local. Mineralocorticoids. Antidiabetics. Insulins. Insulin antagonists. Oral antidiabetics. Thyroid hormones. Parathyroid hormones. Sex hormones. Anabolics - estrogens, progestogens, antiestrogens. Hormonal contraceptives. Anterior pituitary lobe hormones. Somatotropic hormone and possibilities of its use. Posterior pituitary lobe hormones. Uterotonics and tocolytics. Antimicrobials - classification, selection and treatment strategies. Penicillins. Monobactams, carbapenems, beta-lactamase inhibitors.</i>	

Cephalosporins. Macrolides. Tetracyclines. Chloramphenicol. Lincomycin and vancomycin group. Glycopeptide ATB. Aminoglycosides. Polypeptic ATB. Topically used antibiotics. Sulfonamides. Quinolones. Antituberculotics. Antifungals, systemic and local. Antiviral drugs. Antiparasitics - anthelmintics. Chemotherapeutics of protozoal infections. Disinfectants and antiseptics. Cytostatics. Immunopharmaceuticals - immunosuppressants and immunostimulants. Antihistamines. X-ray contrast media. Antidote. Principles of poisoning therapy. Vitamins, vitagens.

Pharmacotherapy of heart failure. Pharmacotherapy of hypertension. Pharmacotherapy of ischemic heart disease. Pharmacotherapy of myocardial infarction. Pharmacotherapy of diabetes mellitus. Pharmacotherapy of disorders of the internal environment. Pharmacotherapy of acute inflammation. Pharmacotherapy of peptic ulcer. Eradication treatment of *H. pylori*. Pharmacotherapy of nonspecific intestinal inflammation. Treatment of viral hepatitis B and C. Symptomatic treatment of respiratory diseases. Pharmacotherapy of bronchial asthma. Pharmacotherapy of chronic obstructive pulmonary disease. Pharmacotherapy of osteoporosis. Pharmacotherapy of anemia. Thrombolytic and anticoagulant treatment. Treatment of hyperuricemia and gout. Pharmacotherapy of shock. Treatment of anaphylactic shock. Pharmacotherapy of hyperthyroidism and hypothyroidism. Principles of acute pain pharmacotherapy. Principles of chronic pain pharmacotherapy

**Recommend literature:**

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**Language needed to complete the subject:** English

Notes:

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*prof. MUDr. Iveta Šimková, CSc.*