UNIVERSITY OF WARMIA AND MAZURY IN OLSZTYN

Course sylabus – part A
Pharmacology and Toxicology

48SJO-PAT
2025
ECTS: 12.00

SUBJECT MATTER CONTENT:

Classes
Basic ideas in pharmacology. How drugs work: basic principles; aspects molecular; cellular aspects – excitation, contraction and secretion; biopharmaceuticals and gene therapy; Cell proliferation, apoptosis

Lecture
General pharmacology. Elements of pharmacokinetics. Pharmacodynamics. Drug interactions at the level of pharmacokinetics and pharmacodynamics. Side effects of medications. Drugs of the autonomic system. Contemporary antibiotic therapy. Treatment of ischemic heart disease - acute coronary syndromes. Pharmacotherapy of myocardial arrhythmias. Drugs used in heart failure. Pharmacotherapy of hypertension.
Endocrinology, Neuroleptic drugs. Pharmacotherapy of neurodegenerative diseases (Parkinson's and Alzheimer's disease). Pharmacotherapy of depression. Medicines used for sleep disorders. Contemporary pharmacotherapy of pain. Toxic addiction. Blood drugs. Pharmacological treatment of migraine.

Seminar
Chemical mediators; Chemical transmitters and the autonomic nervous system; Cholinergic and noradrenergic transmission; 5-Hydroxytryptamine and migraine pharmacology; Purines; Hormones
acting locally. Histamine and biologically active lipids; Hormones acting locally. Peptides and proteins; Cannabinoids; Nitric oxide and related mediators; The nervous system; Chemical neurotransmission i
effects of drugs in the central nervous system; amino acids and other transmitters and modulators;
neurodegenerative diseases; General anesthetics; Painkillers;
Local anesthetics and other compounds affecting sodium channels; Anti-anxiety and hypnotic drugs; Antiepileptic drugs; antipsychotics;
Antidepressants; Psychoactive substances;
Drug addiction and abuse; Selected additional issues: Adverse drug reactions; Drugs affecting the quality of life and drugs in sports; Drug discovery and development;

TEACHING OBJECTIVE:
The student learns about individual groups of medicinal products, their mechanisms and effects of action, basic indications and contraindications and basic pharmacokinetic and pharmacodynamic parameters;
Preparation to acquire practical skill in prescribing drugs.

DESCRIPTION OF THE LEARNING OUTCOMES OF THE COURSE IN RELATION

Legal acts specifying learning outcomes: 311/2023 (Medicine),
Status of the course: None
Group of courses: None
Discipline: Medical Sciences
Classes:
Lecture (30 h)
Seminar (60 h)
Classes (60 h)
Step: Kierunek lekarski trzeci rok (oferta w jęz. angielskim dla obcokrajowców)
Program: Medicine
Form of studies:full-time
Level of studies: uniform master's studies

Introductory subject: Biochemistry, physiology, patophysiology,

Prerequisites: Understanding the basic physiological processes taking place in the body at the cellular, systemic and the whole organism level. Understanding the pathomechanism of diseases.

Coordinators:

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TO THE DESCRIPTION OF THE CHARACTERISTICS OF THE SECOND LEVEL LEARNING OUTCOMES FOR QUALIFICATIONS AT LEVELS 6-8 OF THE POLISH QUALIFICATION FRAMEWORK IN RELATION TO THE SCIENTIFIC DISCIPLINES AND THE EFFECTS FOR FIELDS OF STUDY:

Symbols for outcomes related to the discipline:

M/NMA_P7S_WG++++++++++++++++++++++++++++++++

Symbols for outcomes related to the field of study:

K.1.+, K.2.+, K.3.+, K.4.+, K.5.+, K.6.+, K.7.+, K.8.+, K.9.+, K.10.+, K.11.+, C.U13.+, C.U14.+, C.U15.+, C.U16.+, C.U17.+, C.U18.+, C.U19.+, E.U31.+, C.W35.+, C.W36.+, C.W37.+, C.W38.+, C.W39.+, C.W40.+, C.W42.+, C.W43.+, C.W44.+, C.W45.+, C.W46.+, C.W48.+, E.W10.+, E.W29.+, E.W34.+, E.W43.+

LEARNING OUTCOMES (Knowledge, Skills, Social competence):

W1	The student is able to discuss the mechanisms of action of drugs, adverse effects, toxic, as well as possible interactions that may appear during polytherapy. Has knowledge of the indications, contraindications and dosage of drugs. He knows the rules for the use of antimicrobials, the principles of treatment for poisoning. Has knowledge of the pharmacology of developmental and geriatric age
U1	The student demonstrates the ability to use drugs in the treatment of specific diseases. May prescribe medications. Knowing the main groups of drugs that interact, patients, e.g. the elderly and children, can use the drug in a given group.
K1	The student can establish and maintain a deep and respectful contact with the patient. He/she is guided by the good of the patient, placing them in the first place. Respects medical confidentiality and patient's rights. He/she is aware of his own limitations and the ability to constantly improve his skills.

TEACHING FORMS AND METHODS:

Classes-['W1', 'U1', 'K1']-Pharmacotherapy drug cases, prescribing drugs
Lecture-['W1', 'U1', 'K1']-Multimedia presentation
Seminar-['W1', 'U1', 'K1']-mulitimedia presentations prepared by students

FORM AND CONDITIONS OF VERIFYING LEARNING OUTCOMES:

Lecture-(Oral exam)-[]-60 %
Seminar-(Written exam)-['W1', 'U1', 'K1']-60 %
Classes-(Colloquium test)-['W1', 'U1', 'K1']-60 %

Literature:

1. ***Basic and Clinical Pharmacology 16e***, Todd W. Vanderah, McGraw Hill, 2024, Strony: 1368, Tom:1 (literatura podstawowa)

2. ***Rang & Dale's Pharmacology***, James M. Ritter, Yoon Kong Loke, Rod J. Flower, Graeme Henderson, David MacEwan Emma Robinson, James Fullerton, Elsevier, 2023, Strony: 872, Tom:1 (literatura podstawowa)

3. ***Goodman and Gilman's The Pharmacological Basis of Therapeutics, 14th Edition*** Laurence Brunton Bjorn Knollman, McGraw Hill / Medical, 2022, Strony: 1664, Tom:1 (literatura uzupełniająca)

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Detailed description of ECTS credits awarded - part B
Pharmacology and Toxicology

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The number of ECTS credits awarded consists of:

1. Contact hours with the academic teacher:

- participation in: Lecture	30 h
- participation in: Seminar	60 h
- participation in: Classes	60 h
- consultation	4 h
	Total: 154 h

2. Independent work of a student:

Studying for classes and seminars	60.00 h
Studying for exam	86.00 h
	Total: 146.00 h

Total (contact hours + independent work of a student): 300.00 h

1 ECTS credit = 25-30 h of an average student's work, number of ECTS,
ECTS Points = 300.00 h : 25 h/ECTS = **12.00** ECTS

Average: 12.00 ECTS

- including the number of ECTS credits for contact hours with the direct participation of an academic teacher	6.16 ECTS
- including the number of ECTS credits for hours of independent work of a student	5.84 ECTS