

SYLLABUS

REGARDING THE QUALIFICATION CYCLE FROM 2024 TO 2030

1. BASIC COURSE/MODULE INFORMATION

Course/Module title	Toxicology
Course/Module code *	Tx
Faculty (name of the unit offering the field of study)	Institute of Medical Studies, Medical College, Rzeszów University
Name of the unit running the course	Laboratory of Innovative Toxicological Research and Analyzes
Field of study	English Division MD program in medicine
Qualification level	Uniform Master studies
Profile	General academic
Study mode	
Year and semester of studies	Year III, semester 5 and 6
Course type	Obligatory
Language of instruction	English
Coordinator	Dr hab. n. med. i n. o zdr. Kamil Jurowski, prof. UR
Course instructor	Dr hab. n. med. i n. o zdr. Kamil Jurowski, prof. UR and team

* - as agreed at the faculty

1.1. Learning format – number of hours and ECTS credits

Semester (no.)	Lectures	Classes	Laboratories	Seminars	Practical classes	Internships	others	ECTS credits
4	12	15						

1.2. Course delivery methods

- conducted in a traditional way
- involving distance education methods and techniques

1.3. Course/Module assessment (exam, pass with a grade, pass without a grade)

2. PREREQUISITES

General and Medical Chemistry, Biochemistry, Molecular Biology, Physiology (1st semester).

3. OBJECTIVES, LEARNING OUTCOMES, COURSE CONTENT, AND INSTRUCTIONAL METHODS

3.1. Course/Module objectives

O1	Understanding the basic concepts of general toxicology.
O2	Learning about the factors that influence the toxicity of chemical substances.
O3	Understanding the mechanisms of poisoning with drugs and psychoactive substances, as well as the issue of drug addiction.
O4	Identifying toxidromes and symptoms of the most common acute poisonings by selected groups of drugs, alcohols, psychoactive substances, mushrooms, and heavy metals.
O5	Mastering the basic principles of diagnostic and therapeutic management (first aid, antidotes) in cases of poisoning.
O6	Ability to search for reliable information about medicinal products, with particular emphasis on the characteristics of medicinal products (SmPC) and databases related to adverse drug reactions.
O7	Assessing toxicological risk in different age groups and in conditions of liver and kidney failure, as well as preventing drug poisoning (toxicovigilance).
O8	Ability to search for toxicological data in databases and other sources in case of lack of knowledge.
O9	Mastering the basics of toxicological diagnostics, including principles of sampling, preparation, and examination of materials for toxicological testing (both ante-mortem and post-mortem).

3.2. COURSE/MODULE LEARNING OUTCOMES (TO BE COMPLETED BY THE COORDINATOR)

Learning Outcome	The description of the learning outcome defined for the course/module	Relation to the degree programme outcomes
LO_01	Basic concepts of general toxicology	C.W34.
LO_02	FACTORS INFLUENCING THE TOXICITY OF CHEMICAL SUBSTANCES.	C.W13
LO_03	POISONING WITH DRUGS AND PSYCHOACTIVE SUBSTANCES, AND THE ISSUE OF DRUG ADDICTION.	C.W35.
LO_04	TOXIDROMES AND SYMPTOMS OF THE MOST COMMON ACUTE POISONINGS BY SELECTED GROUPS OF DRUGS, ALCOHOLS, OTHER PSYCHOACTIVE SUBSTANCES, MUSHROOMS, AND HEAVY METALS.	C.W36.

LO_05	BASIC PRINCIPLES OF DIAGNOSTIC AND THERAPEUTIC MANAGEMENT IN CASES OF POISONING.	C.W37.
LO_06	SEARCHING FOR RELIABLE INFORMATION ABOUT MEDICINAL PRODUCTS, WITH A PARTICULAR EMPHASIS ON THE CHARACTERISTICS OF MEDICINAL PRODUCTS (SMPC) AND DATABASES ON ADVERSE DRUG REACTIONS.	C.U12.
LO_07	ASSESSING TOXICOLOGICAL RISKS IN SPECIFIC AGE GROUPS AND IN CONDITIONS OF LIVER AND KIDNEY FAILURE, AS WELL AS PREVENTING DRUG POISONINGS (TOXICOVIGILANCE).	C.U13, K.08 K.011
LO_08	ABILITY TO SEARCH FOR TOXICOLOGICAL DATA IN DATABASES AND OTHER SOURCES WHEN KNOWLEDGE IS LACKING.	K.05, K.07
LO_09	BASICS OF TOXICOLOGICAL DIAGNOSTICS: PRINCIPLES OF SAMPLING, PREPARATION, AND EXAMINATION OF MATERIALS FOR TOXICOLOGICAL TESTING (BOTH ANTE-MORTEM AND POST-MORTEM).	GW.19

3.3. Course content (to be completed by the coordinator)

A. Lectures

Content outline
<p>Definitions and basic toxicological concepts. Basic mechanisms of toxicity and routes of exposure to toxic substances.</p> <p>Factors influencing toxicity (e.g., dose, route of administration, health status, age).</p> <p>Dose-response relationships and the concept of toxicity thresholds.</p> <p>Bioavailability and the fate of xenobiotics in the body (absorption, distribution, metabolism, accumulation, elimination).</p> <p>Classification of psychoactive substances and potentially toxic drugs.</p> <p>Symptoms and management of poisonings with drugs, alcohol, and narcotics. The issue of drug addiction and its impact on public health.</p> <p>Toxidromes: characteristics and recognition of poisoning symptoms.</p> <p>Poisoning diagnostics: laboratory and clinical methods. Cases of poisonings with mushrooms, heavy metals, and other substances.</p> <p>Basic principles of poisoning treatment: decontamination, administration of antidotes, symptomatic treatment. Specialized detoxification methods: hemoperfusion, hemodialysis. Algorithms for managing emergency poisonings.</p> <p>Assessing toxicological risks in different populations (e.g., children, the elderly, individuals with liver and kidney failure). Toxicovigilance: preventing poisonings and monitoring adverse drug reactions.</p> <p>Practical skills in searching for toxicological information in available databases and other sources.</p>

B. Classes, laboratories, seminars, practical classes

Analysis of case studies of poisoning with various substances to recognize symptoms and develop treatment strategies.
Identifying poisonous plants and recognizing their toxic parts.
Understanding the mechanisms of action of animal venoms and the principles of management in cases of bites or stings.
Application of venom extractors in first aid.
Identification and analysis of exhibits of poisonous mushrooms and discussion of their effects on the body.
Simulation of the effects of alcohol consumption using drunk goggles to understand its impact on perception and coordination.
Simulation of the impact of psychoactive substances on the body using drug goggles to learn to recognize symptoms of poisoning.

3.4. Methods of Instruction

Lecture: a problem-solving lecture/a lecture supported by a multimedia presentation/ distance learning

Classes: practical project)/ group work (problem solving, case study, discussion)/didactic games/ distance learning

Laboratory classes: designing and conducting experiments

4. Assessment techniques and criteria

4.1 Methods of evaluating learning outcomes

Learning outcome	Methods of assessment of learning outcomes (e.g. test, oral exam, written exam, project, report, observation during classes)	Learning format (lectures, classes,...)
LO-01 – LO-09	TEST / MIDTERM EXAM	L
LO-01 – LO-09	TEST / MIDTERM EXAM	C

4.2 Course assessment criteria

Lecture

Midterm exam – single-choice test, minimum passing threshold of 60%, 50-100 questions. Possible test questions of the Lawson type, with complex questions containing multiple statements but only one correct combination of answers.

Classes

Midterm exam – single-choice test, minimum passing threshold of 60%, 50-100 questions. Possible test questions of the Lawson type, with complex questions containing multiple statements but only one correct combination of answers.

Attendance at all forms of classes, including lectures, is mandatory.

**5. Total student workload needed to achieve the intended learning outcomes
– number of hours and ECTS credits**

Activity	Number of hours
Course hours	27
Other contact hours involving the teacher (consultation hours, examinations)	3
Non-contact hours - student's own work (preparation for classes or examinations, projects, etc.)	10
Total number of hours	40
Total number of ECTS credits	3

* One ECTS point corresponds to 25-30 hours of total student workload

6. Internships related to the course/module

Number of hours	-
Internship regulations and procedures	-

7. Instructional materials

Compulsory literature: Literature indicated by the lecturer during the classes
Complementary literature: Literature indicated by the lecturer during the classes

Approved by the Head of the Department or an authorised person