LECTURES

Lectures are held via the Blackboard e-learning platform of MUB (https://umbedu.blackboard.com)

1. Principles of diagnostic procedures in poisonings and causal treatment of acute poisonings with chemical compounds – 25.02.2026 (Wednesday) at 2.45 p.m. up to 3.55 p.m. (70 minutes)

Definition of poisoning, the most common causes of poisonings, and types of poisonings due to aetiology (accidental and intentional) and dynamics of the course (acute, subacute, and chronic).
Principles of diagnostic procedures in poisonings (history of the case, clinical picture, and laboratory tests).
The usefulness of laboratory toxicological measurements in clinical toxicology.
Principles of treatment of acute poisonings – symptomatic treatment and causal treatment.
Causal treatment in dependence on the way of poisoning (via the gastrointestinal tract, by inhalation and skin, intraconjunctively): methods of removing an unabsorbed substance from the organism and prevention from its absorption, decreasing or total abolition of the action of a toxic substance by administration of antidotes; the ways of accelerating elimination and removing from the organism of already absorbed toxic substances.
Centres of acute poisonings – their aims and tasks.

2. Specific and non-specific antidotes used in the treatment of poisonings – 04.03.2026 (Wednesday) at 2.45 p.m. up to 3.50 p.m. (65 minutes)

Definition and kinds of antidotes.
Detailed characteristics of non-specific (common and general protecting) and specific antidotes – recommendations for their application in the treatment of poisonings and manners of their action.

Lectures are carried out by Professor Małgorzata M. Brzóska, PhD; Head of the Department of Toxicology

CLASSES

Classes 1 - 5 are carried out in seminar room No 27 of MUB's Euroregional Pharmacy Centre (A. Mickiewicza 2D Street), according to the following schedule:

	Date and time			
	Group 1	Group 2	Group 3	Group 4
Class 1	05.03.2026 Thursday 9.00–9.45 a.m. (45 minutes)	05.03.2026 Thursday 10.00–10.45 a.m. (45 minutes)	06.03.2026 Friday 8.00-8.15 a.m. (45 minutes)	05.03.2026 Thursday 8.00-8.15 a.m. (45 minutes)
Class 2	12.03.2026 Thursday 9.45–11.15 a.m. (90 minutes)	12.03.2026 Thursday 11.30 a.m.–1.00 p.m. (90 minutes)	13.03.2026 Friday 8.00 a.m.–9.30 a.m. (90 minutes)	12.03.2026 Thursday 8.00 a.m.–9.30 a.m. (90 minutes)
Written test I	Date to be confirmed (15 minutes)			
Class 3	19.03.2026 Thursday 9.45–11.15 a.m. (90 minutes)	19.03.2026 Thursday 11.30 a.m.–1.00 p.m. (90 minutes)	20.03.2026 Friday 8.00 a.m.–9.30 a.m. (90 minutes)	19.03.2026 Thursday 8.00 a.m.–9.30 a.m. (90 minutes)
Class 4	26.03.2026 Thursday 9.00–9.45 a.m. (45 minutes)	26.03.2026 Thursday 10.00–10.45 a.m. (45 minutes)	27.03.2026 Friday 8.00-8.15 a.m. (45 minutes)	26.03.2026 Thursday 8.00-8.15 a.m. (45 minutes)
Class 5	02.04.2026 Thursday 9.00–9.45 a.m. (45 minutes)	02.04.2026 Thursday 10.00–10.45 a.m. (45 minutes)	03.04.2026 Friday 8.00-8.15 a.m. (45 minutes)	02.04.2026 Thursday 8.00-8.15 a.m. (45 minutes)
Written test II	Date to be confirmed (15 minutes)			

Written test I involves material from lectures No 1 and 2, and classes No 1 and 2.
Written test II involves material from classes No 3, 4, and 5.

Topics of classes and material that students are asked to learn before classes

Class 1. ***Kinds of health hazards created by chemical substances and factors determining the toxicity of xenobiotics.***
Carried out by **Nazar Smereczański, PhD**

Required material:
Chemical substances present in the natural environment and occupational conditions: sources (natural and anthropogenic) and kinds of chemical pollutions of the environment (air, water, and soil).
Kinds of health hazards created by chemical substances: poisonings (acute, sub-acute, and chronic), accumulation in the organism, distant effects (cancerogenic, mutagenic, and teratogenic), and occupational diseases.
Factors that determine the response of the organism to xenobiotics action: biological factors – genetics, physiological (age, sex, state of health, including liver and kidney insufficiency), and nutritional factors and environmental factors (physical and chemical nature).
The recognition of health hazards resulting from exposure to toxic substances and the evaluation of health effects of these exposures – use of biomarkers of exposure, biomarkers of biological effects, and biomarkers of sensibility; application of biomarkers in clinical toxicology.

Obligatory literature:
Klaassen C.D., Watkins J.B. III: Casarett and Doull's Essentials of Toxicology. – Chapter 2, pp. 6-20; Chapter 3, pp. 21-45; Chapter 8, 111-125; Chapter 10, pp. 146-154; Chapter 28, pp. 407-417; Chapter 29, pp. 420-428; Chapter 33, pp. 453-460.
Barile F.A.: Clinical toxicology. Principles and Mechanisms. – Chapter 4, pp. 37-53; Chapter 5, pp. 54-60.
Optional literature:
Greenberg M.I., Hendrickson R.G., Morocco A., Shrestha M., Bryant S.D.: Medical Toxicology Review, 2nd edition, McGraw-Hill Medical Publishing Division, USA, 2006, pp. 261-265.

Class 2. ***Toxicology of drugs, psychoactive substances, and natural poisons.***
Carried out by **Nazar Smereczański, PhD**

Required material:
Basic types of toxicomanias by WHO and their characteristic.
Toxicity of new synthetic drugs – main kinds of synthetic drugs and mechanisms of their toxic action, symptoms of poisonings, poisoning treatment.
Drugs (including OTC) that are used as psychoactive substances.
Smoking habit as a source of chronic exposure to toxic substances (composition of cigarette smoke, health effects of tobacco smoking, including distant effects).
Doping and its toxicological aspects (kinds of doping agents).
Detecting and monitoring of drug dependences.

Obligatory literature:
Klaassen C.D., Watkins J.B. III: Casarett and Doull's Essentials of Toxicology. – Chapter 31, pp. 440-446; Chapter 32, pp. 447-452.
Barile F.A.: Clinical Toxicology. Principles and Mechanisms. – Chapter 13, pp. 138-149; Chapter 14, pp. 150-163; Chapter 15, pp. 164-182; Chapter 16, pp. 183-202; Chapter 17, pp. 203-206; Chapter 19, pp. 233-241.
Optional literature:
Kwong T.C., Magnani B., Rosano T.G., Shaw L.M.: The Clinical Toxicology Laboratory. Contemporary Practice of Poisoning Evaluation. – Chapter 7, pp. 97-108; Chapter 8, pp. 109-118; Chapter 9, pp. 119-137; Chapter 10, pp. 139-154; Chapter 11, pp. 155-177.
Greenberg M.I., Hendrickson R.G., Morocco A., Shrestha M., Bryant S.D.: Medical Toxicology Review, 2nd edition, McGraw-Hill Medical Publishing Division, USA, 2006, pp. 135-136, 197-200, 231-234, 267-275.

Required material:
Kinds of plant toxins (toxalbumins, coumarins, anthracompounds, alkaloids, cyanogenic glycosides, cardiac glycosides, saponins, resins, essential oils).
Health hazards resulting from toxic plants consumption: Jimson weed (*Datura stramonium*), Deadly nightshade (*Atropa belladonna*), Henbane (*Hyoscyamus niger*), Conium (*Conium maculatum*), Meadow saffron (*Colchicum autumnale*), Poison hemlock (*Cicuta virosa*), Mezereon (*Daphne mezereum*), Monk's hood (*Aconitum napellus*), Yew (*Taxus baccata*), and Castor beans (*Ricinus communis*).

Mushroom poisonings – mushrooms causing internal organ damage (including poisoning with death cup), psychoneurological disorders, disulfiram-like reaction with alcohol, and acute gastroenteritis;
Mycotoxins – sources of exposure and toxicity.
Toxicity of animal venoms – viper, wasps, bees; proceeding in poisonings.

Obligatory literature:
Klaassen C.D., Watkins J.B. III: Casarett and Doull's Essentials of Toxicology. – Chapter 26, pp. 384-395; Chapter 27, pp. 396-403.
Optional literature:
Greenberg M.I., Hendrickson R.G., Morocco A., Shrestha M., Bryant S.D.: Medical Toxicology Review, 2nd edition, McGraw-Hill Medical Publishing Division, USA, 2006, pp. 103-113, 159-166, 245-251, 295-299.

Class 3. ***Health effects of exposure to toxic gases and metals, and diagnostics and treatment of these poisonings.***
Carried out by **Nazar Smereczański, PhD**

Required material:
Gases and ways of their action on the organism – physically and chemically strangling gases and irritating gases.
Toxicity (mechanism of action and symptoms of acute and chronic poisonings) of nitrogen, argon, helium, neon, carbon dioxide, carbon oxide, hydrogen cyanide and cyanides, hydrogen arsenide, hydrogen sulphide, sulphur dioxide, nitrogen oxides, phosgene, chlorine.
Toxicity of military gases.
Diagnostics and treatment of poisonings with gases.

Obligatory literature:
Klaassen C.D., Watkins J.B. III: Casarett and Doull's Essentials of Toxicology. – Chapter 15, pp. 221-230; Chapter 28, pp. 407-418.
Barile F.A.: Clinical Toxicology. Principles and Mechanisms. – Chapter 25, pp. 307-323.
Optional literature:
Kwong T.C., Magnani B., Rosano T.G., Shaw L.M.: The Clinical Toxicology Laboratory. Contemporary Practice of Poisoning Evaluation. – Chapter 22, pp. 351-370.
Greenberg M.I., Hendrickson R.G., Morocco A., Shrestha M., Bryant S.D.: Medical Toxicology Review, 2nd edition, McGraw-Hill Medical Publishing Division, USA, 2006, pp. 121-124, 211-216, 253-257.

Required material:
Metabolism (absorption, distribution, accumulation, excretion), mechanisms of toxic action, and health effects (acute and chronic poisonings, distant effects) of exposure to lead, cadmium, mercury, arsenic, chromium, aluminium, and nickel. Effects of excess of selenium and manganese in the organism.
Diagnostics and treatment of poisonings with metals. The usefulness of evaluation of metals concentration in biological samples for diagnostics of poisonings and monitoring of chronic exposure to metals.

Obligatory literature:
Klaassen C.D., Watkins J.B.III: Casarett and Doull's Essentials of Toxicology. – Chapter 23, pp. 348-359.
Barile F.A.: Clinical Toxicology. Principles and Mechanisms. – Chapter 26, pp. 324-352.
Optional literature:
Kwong T.C., Magnani B., Rosano T.G., Shaw L.M.: The Clinical Toxicology Laboratory. Contemporary Practice of Poisoning Evaluation. – Chapter 21, pp. 335-350; Chapter 20, pp. 319-334.
Greenberg M.I., Hendrickson R.G., Morocco A., Shrestha M., Bryant S.D.: Medical Toxicology Review, 2nd edition, McGraw-Hill Medical Publishing Division, USA, 2006, pp. 85-88, 217-225, 235-240.

Class 4. ***Toxicology of alcohols and other organic solvents, including diagnostics and treatment of poisonings*.**
Carried out by **Nazar Smereczański, PhD**

Required material:
Sources of exposure to organic solvents.
Aromatic solvents (benzene, toluene, xylene, aniline), halogen derivatives of aliphatic hydrocarbons (chloroform, carbon tetrachloride), acetone, and alcohols (ethyl alcohol, methyl alcohol, ethylene glycol) – the influence on the human health (mechanisms of toxic action, acute and chronic poisonings, distant effects).
Diagnostics and treatment of poisonings with organic solvents.
The usefulness of determination of the concentrations of organic solvents and their metabolites in biological samples for diagnostics of poisonings with organic solvents and monitoring of chronic exposure to these compounds.
Interactions of ethyl alcohol with drugs and other toxic substances.

Obligatory literature:
Klaassen C.D., Watkins J.B. III: Casarett and Doull's Essentials of Toxicology. – Chapter 24, pp. 360-371.
Barile F.A.: Clinical Toxicology. Principles and Mechanisms. – Chapter 24, pp. 291-306; Chapter 27, pp. 353-362.
Optional literature:
Kwong T.C., Magnani B., Rosano T.G., Shaw L.M.: The Clinical Toxicology Laboratory. Contemporary Practice of Poisoning Evaluation. – Chapter 5, pp. 57-77; Chapter 6, pp. 79-96.
Greenberg M.I., Hendrickson R.G., Morocco A., Shrestha M., Bryant S.D.: Medical Toxicology Review, 2nd edition, McGraw-Hill Medical Publishing Division, USA, 2006, pp. 317-318.

Class 5. ***Toxicology of nitrogen compounds and pesticides with particular emphasis on diagnostics and treatment of acute poisonings.***
Carried out by **Nazar Smereczański, PhD**

Required material:
Toxicology (general toxicological characteristic, sources of exposure, mechanism of toxic action, health effects of exposure – acute and chronic poisonings and distant effects) of the nitrogen compounds: nitrates(III) and nitrates(V), N-nitrosoamines and pesticides: organophosphate (usefulness of serum acetylcholinesterase activity assessment in poisonings diagnostics), carbamates, pyrethroids, chlorophenoxyacetic acid derivatives, coumarin derivatives.
Diagnostics and treatment of poisonings with pesticides, nitrates(III), and nitrates(V).

Obligatory literature:
Klaassen C.D., Watkins J.B. III: Casarett and Doull's Essentials of Toxicology. – Chapter 22, pp. 333-347; Chapter 30, pp. 431-439.
Barile F.A.: Clinical Toxicology. Principles and Mechanisms. – Chapter 28, pp. 363-375; Chapter 29, pp. 376-384; Chapter 30, pp. 385-394.
Optional literature:
Kwong T.C., Magnani B., Rosano T.G., Shaw L.M.: The Clinical Toxicology Laboratory. Contemporary Practice of Poisoning Evaluation. – Chapter 23, pp. 371-385.
Greenberg M.I., Hendrickson R.G., Morocco A., Shrestha M., Bryant S.D.: Medical Toxicology Review, 2nd edition, McGraw-Hill Medical Publishing Division, USA, 2006, pp. 241-244, 277-282.