



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Fundamentals of Toxicology

Course

Field of study

Pharmaceutical Engineering

Area of study (specialization)

-

Level of study

First-cycle studies

Form of study

full-time

Year/Semester

3/6

Profile of study

general academic

Course offered in

polish

Requirements

compulsory

Number of hours

Lecture

30

Tutorials

0

Laboratory classes

0

Projects/seminars

0

Other (e.g. online)

0

Number of credit points

2

Lecturers

Responsible for the course/lecturer:

prof. Marek Murias

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prof. Marek Murias

Prerequisites

The student starting this subject should have a basic knowledge of anatomy as well as human physiology and pathophysiology. The student should also possess knowledge about the biochemistry of processes related to the absorption, metabolism and elimination of xenobiotics. They should have a basic understanding of the processes taking place in cells at the molecular level. They should have knowledge about the structure of DNA and proteins. The basic knowledge about enzymes: regulation of their expression and well kinetics will be also necessary. They be able to classify chemical compounds (both organic and inorganic) due to their reactivity and molecular structure (e.g. non-polar polar compounds).



They should also have basic knowledge of physical chemistry and such processes like evaporation, diffusion or interactions between molecules having an electric charge.

Course objective

1. General Principles of Toxicology, history and scope of toxicology, principles of toxicology, mechanisms of Toxicity
2. Disposition of toxicants, Absorption, Distribution, and Excretion of Toxicants, Biotransformation of Xenobiotics
3. Non-organ-directed toxicity, chemical carcinogenesis, genetic toxicology, developmental toxicology
4. Target Organ Toxicity selected problems caused by xenobiotics in liver, kidney, central nervous system, endocrine system
- 5: Toxic Agents, Toxic Effects of Solvents and Vapours, Toxic Effects of Radiation and Radioactive Materials, Toxic Effects of Plants and Animals, Toxic Effects of Calories
- 6: Environmental Toxicology Nanotoxicology and Air Pollution
7. Applications of Toxicology, Ecotoxicology, Food Toxicology, Occupational Toxicology, Regulatory Toxicology

Course-related learning outcomes

Knowledge

KW_1, KW_5, KW_8 KW_22, KW_23 The Absolvent knows the mechanisms of action of poisons, knows the basic mechanisms that modulate the course of poisoning, knows the most important toxic compounds used in the pharmaceutical industry, has knowledge of how to avoid poisoning and and knows basic antidotes.

Skills

K_U3, K_U10, KU_12, K_U22 The Absolvent is able to secure the workplace in terms of toxicological safety, The Absolvent is able to interpret the information contained in the material safety data sheets.

Social competences

K_K1, K_K2, K_K3, K_K4 Knows that the pharmaceutical industry can have a destructive impact on the environment and the people and animals inhabiting it, can actively participate in its reduction processes.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

One test exam containing 60 questions and lasting 60 minutes, the threshold of passing 31 correct answers.

Programme content

Teaching methods



Lectures supported by multimedia

Bibliography

Basic

Casarett & Doull Podstawy toksykologii" - Curtis D. Klaassen, John B. Watkins III, red. wyd. pol Barbara Zielińska-Psujka, red. wyd. pol. Andrzej Sapota

Additional

erzy K. Piotrowski Podstawy toksykologii. Kompendium dla studentów szkół wyższych PWN 2017

Breakdown of average student's workload

	Hours	ECTS
Total workload	60	2,0
Classes requiring direct contact with the teacher	30	1,0
Student's own work (literature studies, preparation for test) ¹	30	1,0

¹ delete or add other activities as appropriate