

86S1-TZS

TOXICOMETRY OF ENVIRONMENTAL POLLUTANTS

ECTS: 3.0

HOURS PER SEMESTER/WEEK: LECTURES: 15/1; CLASSES: 30/2

FIELD OF THE STUDY: Chemistry

Level of study: First-cycle (Bachelor's degree) program

Course status: optional *

Year of the study: III

COURSE CONTENTS

LECTURES: Scope and topics of toxicometry studies. Criteria for deciding whether to undertake toxicometer testing. Medical toxicometry – route of exposure, selection of experimental animals, short- and long term studies. Alternative tests to vertebrate animals testing. Environmental toxicometry – selection of test organisms from different trophic levels. Use of standardized biotests in the practice in chemico-toxicological laboratories. Advanced mathematical methods in toxicometry. Dose-response curve, safety factors, toxicity levels.

CLASSES: Determination of the lethal, effective, and inhibitory concentrations. Dose-response curve analysis. Comparison of various statistical algorithms used in toxicometry and pharmacokinetics studies. Calculation based on the regression models. Computer programs supporting toxicometry calculations.

EDUCATIONAL PURPOSE: To provide knowledge of the rules of toxicometry and the toxicometry analysis.

LEARNING OUTCOMES

Knowledge. The student knows and understands the importance of standardized bioassays in laboratory practice and is familiar with toxicometric methods.

Skills. The student is able to use biotests and statistical toxicometric methods in environmental studies.

Social competences. The student objectively evaluates the contribution of one's work and that of others in the joint research and report preparation. He applies the health and safety rules in a lab.

TEACHING FORMS AND METHODS

Lectures. Information lecture, Lecture with a multimedia presentation of selected issues.

Classes. Discussion, Case study, Laboratory methods, Demonstration and observation, Work in groups.

FORM AND CONDITIONS FOR VERIFICATION OF LEARNING OUTCOMES

Lectures. written test - credit with a grade.

Classes. written test - credit with grade.

BASIC LITERATURE

1) S.E. Manahan, Toxicological Chemistry and Biochemistry, 2002

ADDITIONAL LITERATURE

1) C.D. Klaassen, Casarett & Doull's Toxicology: Basic Science of Poisons, 2018

THE TEACHER/TEACHERS CONDUCTING THE CLASSES:

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