

86S1-BWBS

BIOASSAYS IN ENVIRONMENTAL STUDIES

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: Characteristic of biological methods used in the assessment of environmental pollution. Biomonitoring of environmental pollution. Environmental toxicometry – selection of test organisms from different trophic levels. Ways to conduct tests using biotests. Use of standardized biotests in the practice of chemico-toxicological laboratories. Advanced mathematical methods in environmental toxicometry.

CLASSES: Calculation of the degree of contamination of various matrices with selected xenobiotics using standardized Toxkit bioassays. Determination of lethal, effective, and inhibitory concentrations. Dose-response curve analysis. Application of various statistical algorithms in toxicometry studies.

EDUCATIONAL PURPOSE: To provide knowledge of the possibilities of practical use of biotests in environmental analysis and monitoring.

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 evaluates objectively the contribution of one's own 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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