

Level: PhD				
Course title: Selected Topics in Environmental Chemistry				
Status: elective				
ECTS: 15				
Requirements: none				
Learning objectives The aim of the course is to improve students' knowledge of the physical and chemical processes that are important for a full understanding of the fate and behaviour of organic and inorganic pollutants in the environment.				
Learning outcomes Advanced and extended knowledge of the physical and chemical processes that occur in all segments of the environment, improved knowledge of students about modern methods of testing physical and chemical processes in the environment and the ability of students to make critical decisions necessary for successful quality control and environmental management.				
Syllabus <i>Theoretical instruction</i> The laws of thermodynamics. Thermodynamics at interfaces and colloidal systems. Thermodynamic principles of multi-component systems. Ideal and non-ideal fluids, fugacity. Ideal and dilute solutions. Real solutions. The quantitative relationship between structure and reactivity. Partition between the gaseous, liquid and solid phases. Air-water partitioning. Soil-water partitioning. Soil-air partitioning. Kinetics and mechanisms of transformation reactions in the environment. Redox, catalytic and photolytic reactions in the environment. Transport of pollutants in the environment. Transport of pollutants by random motion. Transport of pollutants through boundaries. Special attention will be given to the study of specific problems that describe the behaviour of pollutants in certain segments of the environment (water-sediment, air, soil). <i>Practical instruction</i> Development of projects on a selected topic from the curriculum.				
Weekly teaching load				Other: -
Lectures: 5 (75)	Exercises: -	Other forms of teaching: -	Student research: 5 (75)	