

Level: Bachelor				
Course title: Calculation in Chemistry				
Status: Elective				
ECTS: 5				
Requirements: None				
Learning objectives <ul style="list-style-type: none"> • Providing wide and balanced theoretical knowledge on key concepts of calculations in chemistry. • Enabling students to apply standard methodology in solving calculation problems in chemistry. • Providing the knowledge basis of fundamental chemical calculation for successful processing of knowledge in further chemical education. 				
Learning outcomes <i>After successful completion of the course, a student is able to:</i> <ul style="list-style-type: none"> • Demonstrate the ability of abstract thinking on chemical calculation problems based on understanding of the fundamental chemical terms and definitions. • Demonstrate knowledge and understanding of the basic concepts, terms and principles of homogenous and heterogeneous equilibria in water solutions. • Practically apply theoretical knowledge and understanding in solving qualitative and quantitative problems. • Recognize and solve chemical problems in familiar context and apply the acquired knowledge to other disciplines. 				
Syllabus <i>Theoretical instructions</i> Solutions. Mass fraction, concentrations, molality. Dilution and mixing of two solutions. Equilibria in water solutions: strong and weak electrolytes. Calculation of pH of strong acids and bases, weak acids and bases, polyprotic acids, buffers and ampholytes. Heterogeneous equilibria: solubility product, solubility. Precipitation. Influence of common ion. Quantitative and fractional precipitation. <i>Practical instructions</i> Calculation of concentrations, pH in different solutions, and problems based on heterogeneous equilibria in water solutions.				
Weekly teaching load				Other:
Lectures: 1	Exercises: 2	Other forms of teaching: /	Student research: /	