

<b>Level:</b> Bachelor				
<b>Course title:</b> Calculation in Chemistry				
<b>Status:</b> Elective				
<b>ECTS:</b> 5				
<b>Requirements:</b> None				
<b>Learning objectives</b>				
<ul style="list-style-type: none"> <li>• Providing wide and balanced theoretical knowledge on key concepts of calculations in chemistry.</li> <li>• Enabling students to apply standard methodology in solving calculation problems in chemistry.</li> <li>• Providing the knowledge basis of fundamental chemical calculation for successful processing of knowledge in further chemical education.</li> </ul>				
<b>Learning outcomes</b>				
<i>After successful completion of the course, a student is able to:</i>				
<ul style="list-style-type: none"> <li>• Demonstrate the ability of abstract thinking on chemical calculation problems based on understanding of the fundamental chemical terms and definitions.</li> <li>• Demonstrate knowledge and understanding of the basic concepts, terms and principles of homogenous and heterogeneous equilibria in water solutions.</li> <li>• Practically apply theoretical knowledge and understanding in solving qualitative and quantitative problems.</li> <li>• Recognize and solve chemical problems in familiar context and apply the acquired knowledge to other disciplines.</li> </ul>				
<b>Syllabus</b>				
<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.				
<b>Weekly teaching load</b>				<b>Other:</b>
Lectures:	Exercises:	Other forms of teaching:	Student research:	
1	2	/	/	/