

<b>Level:</b> PhD				
<b>Course title:</b> Advanced Analytical Chemistry (DSH-606)				
<b>Status:</b> Elective				
<b>ECTS:</b> 15				
<b>Requirements:</b> None				
<b>Learning objectives</b>				
<ul style="list-style-type: none"> <li>• Expanding the previously acquired knowledge on acid-base equilibria in aqueous and non-aqueous systems.</li> <li>• Introducing students to interactions in multicomponent homogenous systems.</li> <li>• Enabling students to apply their knowledge in analytical and separation procedures.</li> <li>• Enabling students for independent solving of complex analytical problems related analysis of unknown sample.</li> <li>• Enabling students to apply mathematical and data processing methods in analytical chemistry.</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>• list and explain interactions in multicomponent homogenous equilibria;</li> <li>• solve analytical problems related to different homogeneous equilibria processes in solutions;</li> <li>• apply mathematical equations and computer statistical programs in expression of analytical results;</li> <li>• adequately operate instruments in analysis of an unknown sample.</li> </ul>				
<b>Syllabus</b>				
<i>Theoretical instructions</i>				
Ionic equilibria in solutions. Acid-base equilibrium. Acid-base equilibrium constant determination. Redox processes. Redox titrations. Complex formations. Complex formation function. Concentration distribution. Heterogeneous equilibria. Chromatography. Extraction. Ion-exchange processes. Nonaqueous solutions. Separation methods in analytical chemistry. Analytical methods. Statistical data evaluation in analytical chemistry.				
<i>Other forms of teaching</i>				
Review of the literature. Project preparation.				
<b>Weekly teaching load</b>				Other:
Lectures: 5	Exercises:	Other forms of teaching:	Student research: 5	