

General Information			
Course name	ÚCHV/ANCH1b/03 Instrumental Analytical Chemistry	ECTS Credits	5
		Semester	winter
Aims			
Getting a knowledge of the theoretical principles and instrumentation in analytical chemistry.			
Content			
<p>Spectroscopic methods of analysis. Electromagnetic radiation. Basic components of spectroscopic instrumentation. Sources of energy. Detectors. Spectroscopy based on absorption. Transmittance and absorbance. Beer's Law. Limitations to Beer's Law. Ultraviolet-visible and infrared spectrophotometry. Atomic absorption spectroscopy. Spectroscopy based on emission.</p> <p>Molecular photoluminescence spectroscopy. Atomic emission spectroscopy. Spectroscopy based on scattering. Mass spectrometry. Electrochemical methods of analysis. Potentiometric methods of analysis. Reference electrodes. Membrane electrodes. Coulometric methods of analysis. Voltammetric methods of analysis. Chromatographic methods. General theory of column chromatography. Optimizing chromatographic separations. Gas chromatography.</p> <p>High-performance liquid chromatography. Ion-exchange chromatography. Supercritical fluid chromatography.</p>			
Assessment Methods and Criteria			
Test			
<p>Grading Scale (in %): 100-91%-A, 90-81%-B, 80-71%-C, 70-61%-D, 60-51%-E, 50-0%-FX</p>			

Grading System:

The University recognises the following six degrees for the evaluation of the study results:

- a) A – excellent (excellent results) (numerical value 1)
- b) B – very good (above average results) (1.5)
- c) C – good (average results) (2)
- d) D – satisfactory (acceptable results) (2.5)
- e) E – sufficient (results meet the minimum criteria) (3)
- f) FX – failed (requires further work) (4)

Bibliography

1. Christian G.D. Analytical Chemistry. John Wiley & Sons, Inc. New York – Chichester – Brisbane – Toronto – Singapore 1994.
2. Holtzclaw H.F., Jr., Robinson W.R. College Chemistry with Qualitation Analysis. D.C. Heath and Company 1988.

