

# Analytical Chemistry

**Lecturer:** Dr. Tamás Rétfalvi PhD.

**Institute:** University of Sopron, Faculty of Forestry, Institute of Chemistry

**Course code:** EG149-00A00

**Credit points:** 4

**Time table:** Lecture:2/Lab:2

**Language:** English

## Course description

### Topics

The system of analytical chemistry: sampling, identify and define the problem, design experimental procedure, conduct experiment and gather data, analyze experimental data, propose solution to problem.

Separation techniques: Sampling processes, Liquide- layer and gas chromatography.

Optical spectroscopy: interaction between the sample and UV-VIS-IR radiation, Raman effect, UV-VIS spectrometry, IR and Raman spectrometry, Atomic emission and absorption spectrometry.

Modern analytical techniques for determination of molecular structure: NMR spectroscopy, Mass spectrometry. Thermal analysis: Calorimetry, Differential Thermal Analysis (DTA), Differential Scanning Calorimetry (DSC), Thermogravimetric analysis (TGA).

Portable analytical techniques.

### References

1. Crouch, Stanley; West, Donald; Skoog, Douglas; Holler, F.; Fundamentals of Analytical Chemistry ISBN 9780534417970
2. Harris, D.C. (2008) Exploring Chemical Analysis (4<sup>th</sup> Ed) W. H. Freeman Inc. ISBN 1429201479
3. Skoog, D.A., Holler, F.J., Crouch, S.R. (2006) Principles of Instrumental Analysis (6th Ed) Thomson Brooks/Cole Publishing: Belmont ISBN 0495012017