Course: Spectrometry

credits: 5

Course code	CHVH24SPECTRO
Name	Spectrometry
Study year	2026-2027
ECTS credits	5
Language	Dutch, with parts in English
Coordinator	J. Geertsema
Modes of delivery	Practical / Training Tutorial
Assessments	Spectrometrie Practicum - Other assessment Spectrometrie Theorie - Written, organised by STAD examinations

Learning outcomes

You apply Lambert-Beer's law in practical and in theoretical cases and name the limitations and/or deviations from Lambert-Beer's law.

You describe the absorption process of electromagnetic radiation in molecules and atoms in UV/VIS, Fluorescence and atomic spectrometry.

You name and describe the components of spectroscopic devices.

You calculate various quantitative analyses and name the advantages and disadvantages of the various analyses.

You apply the acquired theoretical knowledge about spectrometry in an independent, safe and responsible way during the performance of an experiment and communicate about this with a result form, presentation and/or logbook according to the applicable guidelines.

Content

In this module, we further explore spectrometric quantitative methods and extend the techniques in theory and practice. The techniques covered are UV-VIS, Fluorescence and atomic spectrometry. The basis is the Jablonski diagram and construction of equipment.

From here we delve into various limitations and deviations of the methods. In addition, various quantitative analyses that can be used in spectrometry are covered, as well as other analytical detection methods. Examples include one-point calibration, calibration line, internal standard, standard addition and two-component analysis (for spectrometry only).

Two experiments will be conducted during the practical days: LC experiment with UV detection at a one-point calibration and the analysis of a calibration line with the UV-VIS spectrometer. In the latter experiment, several parameters of the UV-VIS are also optimized.

Included in programme(s)

Chemistry

School(s)

Engineering, Life Sciences & ICT

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