Fundamentals of Spectroscopy

This three-day, in-depth training course provides a comprehensive understanding of Metrohm near-infrared (NIR) spectroscopy instrumentation, guiding participants through fundamental theory, data acquisition, instrument operation, and essential maintenance procedures. Attendees will gain a strong foundation in NIRS principles and their applications, ensuring they can confidently operate and maintain their Metrohm NIRS instruments for accurate and reliable analysis.

A major focus of the course is the development of chemometric models for sample identification and quantification using Vision software. Participants will learn step-by-step how to create, optimize, and validate calibration models tailored to their specific analytical needs. Additionally, the course covers data validation and best practices for managing both data and instrumentation using Vision Air management software.

Hands-on exercises provide practical experience with Metrohm NIRS instruments, allowing attendees to apply what they've learned in a controlled setting. Interactive Q&A sessions offer opportunities to clarify concepts, troubleshoot challenges, and discuss real-world applications. By the end of the course, participants will have the skills and confidence needed to effectively use Metrohm NIR spectroscopy for their laboratory processes.

Agenda

***Please note this agenda is a general overview & may vary slightly from session to session based on instructor discretion, available instruments and customer needs.**

Day One:

- Spectroscopy and NIR theory.
- Instrumentation.
- Sampling methods.
- Instrument diagnostics and maintenance.
- Data acquisition with Vision Air.

Day Two:

- Introduction to chemometrics.
- Math pretreatments.
- Outlier detection.
- Regression method development and method validation.

Day Three:

- Identification and qualification method development.
- Hands-on examples.
- Vision Air instrument management.
- General Q&A.