



Chromatography Webcast Series

Sponsored by
Association of Public Health Laboratories
and Restek Corporation

www.aphl.org/chromatography



Restek Corporation and the Association of Public Health Laboratories (APHL) have embarked on a joint venture to present educational programs to clinical and public health laboratories. Programs are based on current Restek seminars and will help managers, supervisors, and analysts improve the quality and efficiency of their laboratories. This series consists of four widely acclaimed seminars on liquid and gas chromatography, addressing the fundamentals of separation and progresses from theory to practical applications. Each seminar is divided into hour long modules delivered by webinar. Each of the modules are recorded and available for review or training of new staff. Both beginning and advanced chromatographers will benefit from these dynamic, in-depth sessions.

Please see the following pages for full seminar and module descriptions and schedule.

SPEAKERS

All speakers are from Restek Corporation, Bellefonte, PA.

Liquid Chromatography & LC/MS Team:

Julie Kowalski, Food Applications Chemist
Rick Lake, Pharmaceutical Market Development Manager
Michelle Misselwitz, Applications Chemist
Amanda Rigdon, Applications Chemist

Gas Chromatography & GC/MS Team:

Chris English, Innovations Manager
Jonathan Keim, Technical Support Manager
Rick Parmely, Director of Technical Training
Kristi Sellers, R&D Manager

REGISTRATION FEES

Registration deadline for the first live program is February 9, 2009. Registration deadline for the series is January 11, 2011. Anyone registering after the first live program will receive the archived webcast information.

\$449 for the series, which includes the four seminars and all modules, plus access to all 23 modules for two years.

- Select a Site Facilitator who can receive all communication via email.
- Site Facilitator must register online at www.aphl.org/chromatography.
- If you have difficulty with the online registration process, please email registrar@aphl.org or call 240.485.2727 from 8:00 a.m. to 4:30 p.m. ET. After your facility's registration is confirmed, the Site Facilitator will receive all necessary instructions and paperwork via email.
- For program content information, please contact Rick Parmely by email at rick.parmely@restek.com.

AUDIENCE

This intermediate-level program is appropriate for managers, supervisors, and analysts working in public health, clinical, and environmental laboratories.

CONTINUING EDUCATION

The Association of Public Health Laboratories (APHL) is approved as a provider of continuing education programs in the clinical laboratory sciences by the ASCLS P.A.C.E.[®] Program. Participants may choose to complete any or all of the seminars for credit. Students who successfully complete all modules in a seminar will be awarded 5.0 or 6.0 contact hours. P.A.C.E.[®] is accepted by all licensure states except Florida. Each course has been approved for 5.0 or 6.0 contact hours for Florida Laboratory Licensees.

CE credit will be awarded after the completion of each seminar.

SPECIAL NEEDS

In compliance with the Americans with Disabilities Act (ADA), individuals requiring special accommodations please notify the APHL Customer Service Manager by email (customersupport@aphl.org) or phone (240-485-2746) at least three weeks prior to the program.

The Association of Public Health Laboratories (APHL) Department of Continuing Education and Training sponsors educational programs on critical issues in laboratory science.

For a complete list of courses, visit www.aphl.org/courses.

course# 588-685-09

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Seminar 1: Liquid Chromatography

DESCRIPTION

This seminar details fundamentals, best practices, and latest developments in HPLC. Over the course of the six modules, you will broaden your understanding of how separations work and gain skill in selecting the correct column, choosing mobile phases, optimizing a detection system, conducting routine maintenance, and troubleshooting.

All modules take place 1:00 - 2:00 PM ET.

Module LC-1: Introduction to HPLC (February 11)

A solid review of the basic principles of HPLC: includes definitions, characteristics, and a historical perspective on the development of this popular technique.

Module LC-2: Modern HPLC Systems (March 11)

Detailed descriptions of pumps, injectors, detectors, data recording systems, and more. Improve your plumbing skills with this focused discussion of connections and components.

Module LC-3: Separation Techniques (April 15)

Modes of separation are presented and discussed in detail. Go beyond the basics and learn how stationary phase and mobile phase choices influence separation.

Module LC-4: Column Selection (May 13)

Column choice is arguably the most important factor in achieving successful separations. This unit offers an in-depth exploration of chemical and physical column properties and teaches you how to use them to your advantage.

Module LC-5: Method Development (June 10)

Knowing how to approach method development efficiently can save time and reduce headaches. Gain critical skills and insight from experienced chemists. We teach you how to identify goals, select preliminary conditions, optimize parameters, and validate your final method.

Module LC-6: Maintenance & Troubleshooting (July 15)

Reduce downtime and improve lab efficiency with a routine maintenance program. Also includes basic troubleshooting skills to help you return instruments to productivity faster following non-routine events.

OBJECTIVES

At the conclusion of this program, the participants will be able to:

- Outline fundamentals, best practices and latest developments in high pressure liquid chromatography (HPLC).
- Describe how separations work and how to select the correct column and mobile phase and how to optimize a detection system.
- Conduct routine maintenance and troubleshooting of instrument and procedure.

Seminar 2: Gas Chromatography

DESCRIPTION

Restek's GC seminar is a solid initiation into the fundamentals and best practices of this widely used technique. Through the five modules, you'll expand your knowledge and improve your ability to select a column, choose injection techniques, optimize detector and analytical conditions, and conduct routine maintenance and troubleshooting.

All modules take place 3:00 - 4:00 PM ET.

Module GC-1: Introduction to GC (February 11)

Begin with a review of the factors affecting chromatographic separations and build on these basics with a discussion of GC components and column types.

Module GC-2: Column Selection (March 11)

Column selection is one of the most important factors affecting separations. Learn about critical considerations and discover how to make the most effective choices for your analyses.

Module GC-3: Sample Introduction (April 15)

This unit provides a comprehensive evaluation of sample introduction techniques, reviewing gas, liquid, and other injection methods. Also includes a discussion of injector maintenance and the critical role it plays in reducing system contamination.

Module GC-4: Detector Systems (May 13)

Fundamental differences among detectors can determine their suitability for particular applications. This module covers basic theory, contrasts FID, ECD, and MS detectors, and explores details affecting quantitative analysis.

Module GC-5: Maintenance and Troubleshooting (June 10)

Correct column installation is a critical factor for successful analyses. Learn installation techniques and best practices for routine maintenance and troubleshooting in this practical, skill-building module.

OBJECTIVES

At the conclusion of this program, the participants will be able to:

- Review the factors affecting separations, GC components, and sample introduction techniques.
- Discuss injector maintenance for reducing system contamination.
- Contrast the fundamental differences among detectors and how they affect quantitative analysis and suitability for particular applications.
- Describe correct column installation and best practices for maintenance and troubleshooting.

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Seminar 3: LC/MS Chromatography

DESCRIPTION

This course provides a sound basis for selecting and optimizing LC/MS systems for a wide variety of modern applications. Through the six modules, you will benefit from a detailed discussion of interface and analyzer systems, learn how to properly develop an LC/MS method, and examine a variety of case studies.

All modules take place 1:00 - 2:00 PM ET.

Module LC/MS-1: Introduction to LC/MS (August 12)

An in-depth exploration of this powerful and growing technique: includes benefits, applications, and a review of HPLC basics.

Module LC/MS-2: LC/MS Analyzers (September 2)

This session focuses on the specifics of mass analyzers and ion detection. Contrasts mechanisms, functionality, and applications of quadrupoles, ion traps, time of flight analyzers, MS/MS analyzers, and more.

Module LC/MS-3: LC/MS Interfaces (September 30)

An in-depth look at electrospray, APCI, APPI, and MALDI interfaces and the implications that each has for sample analysis: includes discussion of the purpose of the interface and important considerations for optimal chromatography.

Module LC/MS-4: LC/MS Method Development (October 28)

Method development is often described as an art, but the steps described in this module will help you improve your skills and develop more effective methods: includes special considerations for quantitative LC/MS.

Module LC/MS-5: Practical Applications: Case Studies (Nov. 18)

Review of actual case studies provides an invaluable tool for improving your analyses: covers THC metabolites by LC/MS/MS, steroids in wastewater by LC/TOF-MS, paraquat/diquat by LC/MS and Newborn Screening by Tandem LC MS/MS.

Module LC/MS-6: Maintenance and Troubleshooting (December 9)

Specific maintenance recommendations for the LC/MS system: includes HPLC basics, MS calibration and tuning, and troubleshooting the MS detector. You can reduce unforeseen downtime with these guidelines for proper routine maintenance.

OBJECTIVES

At the conclusion of this program, the participants will be able to:

- Discuss the selection and optimization of LC/MS systems in a wide variety of applications.
- Outline LC/MS interfaces and method development, including quantitative LC/MS.
- Summarize practical applications, maintenance and troubleshooting for general use and specific analyses including THC metabolites, wastewater testing and newborn screening by tandem LC MS/MS.

Seminar 4: GC/MS Chromatography

DESCRIPTION

Gain practical knowledge of mass spectrometric detectors, GC inlets, injection techniques, GC column selection, basic spectral interpretation, maintenance and troubleshooting. These six modules will improve your understanding of the fundamentals and help you apply them to your methods.

All modules take place 3:00 - 4:00 PM ET.

Module GC/MS-1: Introduction to GC/MS (July 15)

Focused discussion on the advantages of coupling GC and MS data to achieve very powerful results. This section helps lay the foundation for the remainder of the modules in this seminar.

Module GC/MS-2: Mass Spectrometric Detectors (August 12)

This module examines common ionization techniques and surveys the most common modern analyzers. You'll learn how to optimize sample ionization and analysis for various sample types.

Module GC/MS-3: Inlets and Injection Techniques (September 2)

Poor data quality can arise from improperly optimized inlet configurations. This module discusses the important features of a properly optimized GC inlet system. We also share tips and tricks used by skilled chromatographers to properly maintain the inlet system.

Module GC/MS-4: Column Selection (September 30)

Column selection is critical for a successful GC/MS analysis. This module presents fundamental principles needed to properly select a capillary column for your specific analyses.

Module GC/MS-5: Basic Spectral Interpretation (October 28)

Although challenging, this module presents a variety of fundamentals for interpreting mass spectral data. Problems of accurate interpretation, common fragmentation, interpretation rules, and misinterpretations of data will be presented.

Module GC/MS-6: Maintenance and Troubleshooting (November 18)

Effective maintenance can help prevent the majority of common system problems. This module will address good maintenance practices and point out steps that will help you identify system problems as they crop up.

OBJECTIVES

At the conclusion of this program, the participants will be able to:

- Outline the advantages of coupling GC and MS.
- Describe common ionization techniques and most common analyzers.
- Summarize the importance of injection techniques, column selection and basic spectral interpretation in maintaining data quality and accuracy.
- Review effective maintenance and troubleshooting techniques.

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