

The Practichem Series of Training Seminars

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Rev. 0310

**Good Training
Is Your Best
Lab Instrument!**

***Training
Analytical
Chemists Since
1993!***

ACCTA, Inc.
P. O. Box 25602
St. Paul, MN 55125
Phone: (651) 731-3670
Fax: (651) 730-0965
Email: training@accta.com

Practichem™ On-Site Training Seminars

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About the *Practichem*™ Series of On-Site Training Seminars

This series has been developed over many years with the idea that modern analytical laboratories require training programs that provide one or more of the following benefits:

- Advanced training on specialized topics for senior staff.
- Practical training that fills in the “gaps” between academic theory and laboratory practice.
- “Refresher” courses for both new and experienced laboratory staff.
- Focused presentations that don't take staff away from their jobs for long periods.

These seminars emphasize the development of *practical* chemistry skills by minimizing the discussion of theoretical principles and emphasizing the *application* of chemistry concepts. The topics have been chosen to provide instruction in the key techniques that are vital to the generation of high quality laboratory data. In addition, the seminars include the important practical information that is either lacking or not fully presented in other, more traditional courses. Hundreds of students, from every industry that employs analytical chemists, have benefitted from this seminar series. These are vendor-independent seminars. We are trying to explain technologies, not sell them!

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Instructors

Our instructors are practicing analytical chemists with many years of experience working in analytical laboratories. [Click here](#) for more information.

Comments From Previous Students

- *"Good practical review of general chemistry and laboratory practices."*
- *"I never had all this information presented together. It was very helpful."*
- *"Very good presentation. Easy to understand."*
- *"Excellent presentation skills."*
- *"Relevant."*

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Looking for a different topic?

All seminars incorporate a modular design, and topics from existing seminars, along with new topics, can be combined to make exactly the seminar you need. Contact us to discuss your particular needs.

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How much will it cost?

Costs for customized programs are prepared based on your specific needs. Estimates will vary depending on the seminar topics, number of students, and the number of required instructors. However, in general, per person costs are less than what you would pay to send someone to a public seminar. For larger groups, the costs are considerably less than a public seminar!

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General Analytical Topics

Analytical Calibration Techniques (½ Day)

This seminar provides a complete set of instructions on how to set up and evaluate any analytical calibration system, with an emphasis on providing the highest quality results with a minimum of effort. Students will learn the fundamentals of linear regression, different options for preparing data, what calibration options are available, and simple procedures and tests for evaluating calibration data. For a more detailed description, [click here](#). [Return to Top](#)

Chromatography Quantification Techniques (1 Day)

This seminar is a combination of Analytical Calibration Techniques and Integrating Chromatographic Peaks. This combination is particularly useful for the practicing analyst, and provides information that is not available from any other source.

For a more detailed description, [click here](#). [Return to Top](#)

Practical Laboratory Statistics (½ Day)

This course provides a practical discussion of statistical principles, with very little statistical "theory". The content focuses on the most common statistical techniques that are used in evaluating analytical chemistry data. Students will learn about calculating common statistical parameters, properly rejecting data points, spotting trends, and comparing sets of data. These topics are taught by working through real laboratory examples.

For a more detailed description, [click here](#). [Return to Top](#)

Laboratory Techniques

Analytical Laboratory Techniques (1 Day)

This new one day seminar covers many of the laboratory techniques needed to function effectively in today's GMP and GLP environments. Based on discussions with laboratory staff in the healthcare industries, this seminar provides a comprehensive overview of important topics such as various mathematical skills related to the analytical laboratory, proper use of basic laboratory equipment, use of volumetric glassware, preparation of standards, and documentation needs.

For a more detailed description, [click here](#). [Return to Top](#)

Sample Preparation - The Chemistry Behind the Techniques (1 Day)

This seminar covers all aspects of sample preparation, including a discussion of general principles, a review of traditional procedures (filtration, solvent evaporation, etc.) and traditional techniques (liquid-liquid extraction, liquid-solid extraction, etc.), and new technologies (membrane disk extractions, SFE, SPME, ASE, and others).

For a more detailed description, [click here](#). [Return to Top](#)

General Chromatography

Practical HPLC for Operators (1 Day)

This course is a user-inspired introduction to modern HPLC. The focus is on practice, not theory, and is designed for the new user. There are very few equations; rather, we talk about how to prepare the instrument for analysis and verify that it is working properly. We cover these topics through checklists and practical recommendations.

For a more detailed description, [click here](#). [Return to Top](#)

Introduction to Liquid Chromatography (1 Day)

Give your young analysts (1 - 3 years experience) an introduction to the practice of modern liquid chromatography. In one day the students will learn about the types of liquid chromatography, how the instruments are designed, and how to begin learning about troubleshooting techniques. This seminar is designed for new users who are expected to improve their abilities and grow into a more advanced role.

For a more detailed description, [click here](#). [Return to Top](#)

Advanced Topics/Method Development in HPLC (2 Days)

Give your experienced analysts (3+ years experience) some additional training in liquid chromatography. We will discuss issues related to getting the most out of your instrument, including reducing integration errors, dealing with advanced operating issues, and troubleshooting common problems.

For a more detailed description, [click here](#). [Return to Top](#)

Troubleshooting Chromatographic Systems (1 or 2 Days)

Both general and specific troubleshooting topics are covered in this seminar. A discussion of general problem-solving strategies is followed by a review of causes and solutions to the following GC and LC issues: peak shape and baseline changes, retention time problems, detector variations, data system problems, and reporting considerations.

For a more detailed description, [click here](#). [Return to Top](#)

Introduction to Gas Chromatography (1 Day)

Learn how your GC is designed and how to operate it effectively. You will understand how to select a column (or why a certain column was selected for your method) and what column parameters have an influence on results. We will discuss how the instruments are designed and will also discuss basic troubleshooting symptoms and solutions.

For a more detailed description, [click here](#). [Return to Top](#)

Integrating Chromatographic Peaks (1/2 Day)

Integration of chromatographic peaks is a critical step in the generation of chromatographic data. Errors in integration will result in a corresponding error in calculated results. Unfortunately, most analysts have little or no training in the proper procedures for peak integration. In this seminar, we will teach you how integrators work and provide some guidelines on the proper way to integrate poorly resolved peaks.

For a more detailed description, [click here](#). [Return to Top](#)

Instrument Specific Training

Introduction to the Agilent 1100/1200 LC and ChemStation® Software (4 Days)

Do you have Agilent 1100 or 1200 HPLC's that aren't being used effectively? Do your staff struggle with understanding how the software works, or are they unable to troubleshoot basic problems? This on-site, hands-on course will help all users understand both their instrument and the software.

For a more detailed description, [click here](#). [Return to Top](#)

Maintenance for the Agilent 1100/1200 HPLC Systems (1 Day)

Would you like to learn how to maintain your own instrument? Do you need to learn LC troubleshooting? This lecture and hands-on course will help you with both needs. In one day you can improve your understanding of your instrument. Start getting the most from your equipment. For a more detailed description, [click here](#). [Return to Top](#).

Software

Introduction to the Agilent ChemStation® (1 Day)

Now you can get training for one of the most popular, and complex, chromatography data systems. This one day seminar will provide an overview of the basic functions in the ChemStation, including editing methods, sequences, integration settings, calibration tables, and reporting styles. You will also get hands-on expert help with your own methods.

For a more detailed description, [click here](#). [Return to Top](#)

Introduction to the Agilent 8453 UV-VIS Spectrophotometer and ChemStation Software (2 Days)

Introduction to the Agilent 8453 UV-VIS Spectrophotometer and ChemStation Software (2 days)
This is a powerful instrument with complex software, and almost no documentation. This is the only course that is available. (Agilent does not have any training for this instrument; we are the only ones!) We can help you understand both the basic and advanced features of the software, and provide information on instrument troubleshooting and maintenance.

For a more detailed description, [click here](#). [Return to Top](#)

Agilent GPC Software (1 day)

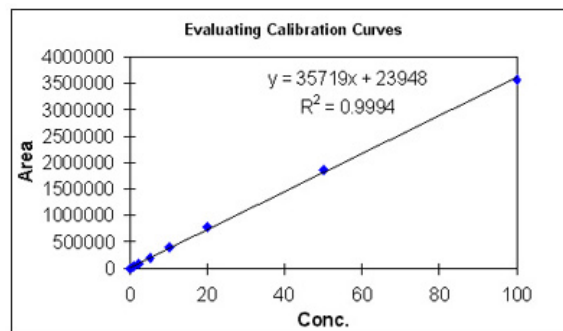
Learn how to use this powerful software add-on, and get personalized assistance with your own laboratory methods.

For a more detailed description, [click here](#). [Return to Top](#)

Analytical Calibration Techniques

What is wrong with this calibration curve?

The linear fit "looks good" and the correlation coefficient is "three nines." This must be a good curve, right? Unfortunately, if you re-analyzed the standards as samples, you would find that five of the eight standards were in error by more than five percent. Three of the standards are in error by more than 15% from their known values! Clearly, the usual procedures for evaluating calibration curves are not always accurate.



There is more to understanding calibration curves than just running standards and measuring the correlation coefficient! The calibration curve is one of the most important steps in the generation of analytical data. We will show you how to do it the right way (and it isn't difficult)! When properly designed, the calibration system provides accurate results with a minimum of effort. However, a poorly constructed system can waste valuable instrument and analyst time, and result in poor quality data.

This seminar will provide a complete set of instructions on how to set up and evaluate any analytical calibration system, with an emphasis on providing the highest quality results with a minimum of effort. Examples are drawn from GC, LC, GC/MS, and AA data sets. Spreadsheet programming examples are included in the course notes.

This course provides valuable and practical information that is not currently available from any other single reference source.

Students will learn:

- The fundamentals of linear regression
- Different options for preparing data
- What calibration options are available
- Why the correlation coefficient is not a good measure of calibration quality
- Simple procedures and tests for evaluating calibration data

Outline

Linear Regression Basics

Data Transformations

- External Standard Method, Internal Standard Method, Isotope Dilution

Selecting Calibration Levels

- How many levels are needed and how should they be spaced?

Calibration Options

- Single Point, Response Factor/Average Response Factor, Linear Through Zero, Linear With Intercept, Method of Standard Additions, 2nd Order Polynomial

Evaluation of Data

- Correlation Coefficient, Analysis of Residuals, Zero Intercept Test, Evaluating Real World Data Sets

Course Length: 1/2 day

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Chromatography Quantification Techniques (Integrating and Calibrating)

This seminar covers two very important steps in the generation of analytical data:

- Integration of chromatographic peaks
- Design and use of analytical calibration systems (i.e., calibration curves)

We have combined two of our most popular seminars (Integrating Chromatographic Peaks and Analytical Calibration Techniques) into a full day of training that you can't find anywhere else. Most analysts get little training about how to properly integrate chromatographic peaks, how to set up a calibration curve, or how to interpret the results. Chromatography Quantification Techniques will help eliminate these issues, and the associated errors, from your laboratory! See the individual course descriptions for more information.

There isn't any other single reference source that can provide this much information and guidance in such a short time! We have distilled years of experience into a practical presentation that will make a difference in the quality of data generated by your laboratory!

Students will learn about:

- Peak Integration
- How chromatographic integrators work
- Ways to integrate poorly resolved chromatographic peaks
- Errors associated with different integration options

Analytical Calibration Techniques

- The fundamentals of linear regression
- Different options for preparing data
- What calibration options are available
- Why the correlation coefficient is not a good measure of calibration quality
- Simple procedures and tests for evaluating calibration data

Course Length: 1 day

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Practical Laboratory Statistics

This course provides a practical discussion of statistical principles, with very little statistical "theory." The content focuses on the most common statistical techniques that are used in evaluating analytical chemistry data.

Students will learn:

- How to calculate means, standard deviations, and confidence intervals
- How to properly reject data points
- How to spot trends in your data
- How to determine if two standard deviations are different from each other (comparing precision)
- How to determine if two means are different from each other (comparing accuracy)

These topics are taught by working through real analytical chemistry examples.

Outline

General Statistical Principles

Statistical Definitions

- Mean, Median, Range, Variance, Standard Deviation

The Normal Curve

Hypothesis Testing

- Null Hypothesis, Alternative Hypothesis
- Level of Significance
- One- and Two-Tail Tests
- Confidence Intervals

Evaluation of Data

- Looking for Trends
- Rejection of Data
- Comparing Variances (F-test)
- Comparing Means (t-Test)
- Practical vs Statistical Significance

Control Charts

Course Length: ½ day

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Analytical Laboratory Techniques - Healthcare Edition

Train Your Staff in the Laboratory Skills They Need! Good technique is essential in every successful analytical laboratory. However, laboratory analysts in the healthcare industries have particularly challenging job requirements, due to both regulatory (e.g., GMP and GLP) and economic demands. This seminar can help your entire laboratory realize better efficiency and data quality, by ensuring that every staff member has the same basic level of training. Based on discussions with analytical scientists in the pharmaceutical industry, this seminar provides a broad range of topics that are directly related to the laboratory activities of the typical analyst.

Who Should Attend?

- New laboratory staff - either recent graduates or transfers from other groups
- Specialists who want to add new skills or need cross-training instruction
- Experienced analysts and technicians who want or need a brief refresher course
- Anyone needing the "education, training, and experience, or any combination thereof ..." to work in a GMP environment.

Benefits to You and Your Staff!

- A one day presentation, so your staff aren't away from work for a long time. The seminar can even be scheduled for an afternoon/next morning format, so they don't miss an entire day in their busy schedules.
- Every student receives a Certificate of Training, for their personnel files.
- Every student receives exact copy course notes.
- Course notes include class exercises to be completed and discussed during the seminar.

Outline

PART 1: Mathematical Skills

- Perspectives
- Units and Calculations
- Chemical Factors
- Significant Figures and Rounding
- Method-Related Calculations

PART 2: Using Laboratory Equipment

- Analytical Balances
- pH Meters
- Filtration

PART 3: Volumetric Containers

- General Issues
- Specifications and Calibration
- Volumetric Flasks and Pipets
- Pipetting Instruments (Pipettors)

PART 4 : Solution Preparation Issues

- Propagation of Errors
- Preparation of Standards
- Documentation and Observation

Course Length: 1 day

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Sample Preparation - The Chemistry Behind the Techniques

Come prepared to learn that sample preparation is more than just a few "low technology" procedures. Learn about the chemical principles behind the techniques, and how an understanding of these principles will provide better results. This course will include a survey of many traditional procedures, including information on recent advances in these techniques. Several new sample preparation technologies will also be introduced.

This is not a "recipe" course limited to a particular sample type or application. This course offers a comprehensive treatment of sample preparation as an important part of every analytical method. You will learn more than just a few manipulations; you will come away with a complete understanding of what sample preparation is and how you can use it effectively.

Students will realize the following benefits from this course:

- Better control of variables in sample preparation steps, producing more reliable results.
- Better efficiency and decision-making skills, since time is not wasted on unnecessary or lengthy manipulations
- A knowledge of what traditional techniques are available, and what recent advances make them even more efficient.
- An understanding of several "new" technologies that might also be useful.

Outline

Perspectives on the Importance of Sample Preparation

General Principles

- Physical Changes, LeChatelier's Principle, Effects of Temperature, Time, Ionic Strength, and pH, "Like-Dissolves-Like", Partitioning Equilibria

Traditional Procedures

- Derivatization, Filtration, Drying Agents, Solvent Evaporation, Solvent Exchange, Traditional Techniques

Liquid-Liquid Extraction

- Separatory funnels, Other LLE variations, Emulsions

Liquid-Solid Extraction

- Soxhlet/Accelerated Soxhlets, Microwave-based methods, Ultrasonics, SPE, Membrane Disk Extractions

New Technologies

- GC Sample Preparation
- Supercritical Fluid Extraction (SFE)
- Solid Phase Microextraction (SPME)
- Accelerated Solvent Extraction (ASE)

Course Length: 1 day

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Practical HPLC for Operators

This one day course is designed for any analyst who operates HPLC systems and wants to become a better user. Students will learn in general terms about how the equipment is designed and how to properly operate the equipment for routine analysis. An introduction to simple LC troubleshooting and sample preparation will also be presented. The emphasis will be on the practice of HPLC, not the theory. Each topic includes summaries and checklists that the students can use in their own laboratories.

Benefits from this course:

- Know the important steps to complete before analysis
- Recognize when the instrument is (or is not) ready for analysis
- Recognize when you have a problem
- The Do's and Don'ts of Caring for your HPLC

Outline

What is chromatography and why do we use it?

Definitions

How does the equipment work?

Getting ready for analysis

Typical operating conditions and trends

Shutdown and storage procedures

Troubleshooting LC Systems – how do I know when it is broken?

Sample Preparation for LC

Discussion

Prerequisite: none

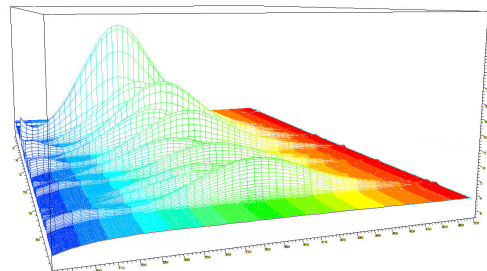
Course Length: 1 Day

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Introduction to Liquid Chromatography

Understanding Your LC

Most new chromatography analysts have little or no understanding of modern liquid chromatography. This seminar will provide the knowledge they need to effectively operate their instrument. It offers an introduction to the basics of liquid chromatography and the design of the instrumentation. The presentation emphasizes the practical aspects of liquid chromatography, not just theory.



Students will learn about:

- The basic operating principles of liquid chromatography
- The design of LC components
- The basic rules for maintaining their LC systems

Outline

Introduction to Chromatography

History and Relevance of Chromatography

2-Phase Distribution Equilibria

Chromatographic Processes

Definitions and Basic Equations

Controlling the separation

Operating Modes

- Reverse Phase
- Normal Phase
- Size Exclusion
- Ion Exchange

LC Equipment

Mobile Phases

- Solvent Delivery Systems
- Injection Systems
- Stationary Phases
- Detectors
- Fittings

Data Systems - An Introduction to Data Acquisition and Integration

Sample Preparation

- Preparing Your Sample for LC Analysis

Introduction to Chromatographic Troubleshooting

- General Strategies
- Common Symptoms
- Design-Related Problems
- Preventive Strategies

Open Discussion

Prerequisite: Basic understanding and experience with liquid chromatography (1 - 3 years).

Course Length: 1 day

[Return](#)

Advanced Topics/Method Development in HPLC

Getting the Most From Your LC

After a few years in the lab, some analysts are ready to go to the next level in using liquid chromatography. This seminar helps them get there! The topics include many current issues related to operating modern liquid chromatography instruments. This is an excellent overview for the experienced analyst as well as anyone involved in method development.

Students will learn:

- How to minimize integration errors
- How to get the most from their LC system
- How to troubleshoot LC problems
- The latest advances in LC

Outline

Integrating Chromatographic Peaks

- How Do Integrators Work?
- What Baseline Options are Available?
- What Errors are Associated with Each Option?
- Dealing with Complex Issues (Tailing, Noise, Unresolved Components, etc.)

Advanced Operating Issues

- Extra-Column Effects
- Pressure Effects - Flow Through Packed Beds
- Column Configurations
- Gradient Programming
- Column Selectivity

Advances in LC Detectors

- Diode array
- Evaporative Light Scattering
- Charged Aerosol
- Chemiluminescence
- LC-MS

Chromatographic Troubleshooting

- Organized Troubleshooting
- Common Symptoms and Their Sources
- Discussion Examples

What's New In LC?

- High Temperature LC
- High Pressure LC

Method Development - Putting It All Together

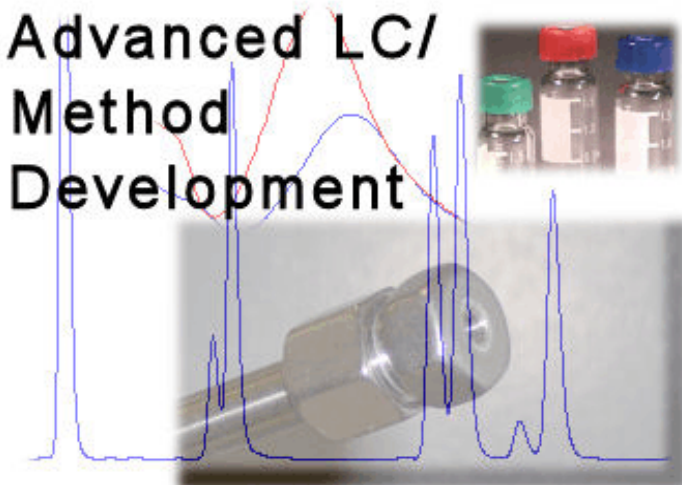
Open Discussion

Prerequisite: "Introduction to Modern Liquid Chromatography" or equivalent experience (3+ years).

Course Length: 2 days

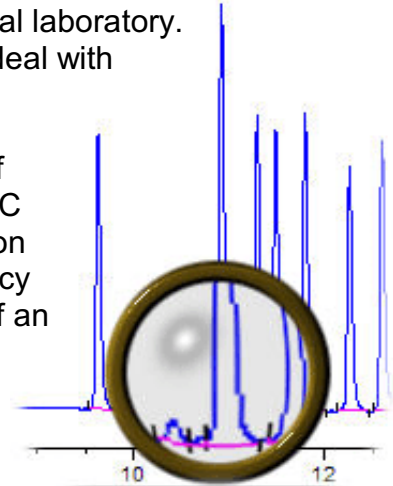
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Advanced LC/ Method Development



Troubleshooting Chromatographic Systems

Chromatographic instruments are an integral part of almost every analytical laboratory. While modern instruments are very reliable, chromatographers must still deal with occasional problems (peak shape changes, baseline shifts, retention time problems, etc.) that can arise from the instrument, the sample, or the laboratory. This seminar will provide guidance on identifying the causes of such problems, finding solutions, and preventing future problems. Basic LC and GC components will be discussed, and helpful hints will be provided on how to avoid certain problems and maximize the overall analytical efficiency in the laboratory. Come prepared to discuss your own situations as part of an interactive discussion.



Students will learn about:

- General troubleshooting strategies
- The importance of evaluation mixtures
- Common symptoms
- Common solutions to common symptoms

Outline

Data Systems, Peak Integration and Reporting Issues

- How should you integrate poorly resolved peaks?
- When should you integrate with peak height rather than peak area?

General Troubleshooting Strategies

- Isolating the Problem
- Common symptoms
- Using Evaluation Mixtures

Troubleshooting Gas Chromatography Systems

- GCs Today
- Autosamplers and Inlets
- Capillary Columns
- Detectors
- Plumbing
- Ancillary Techniques
- Prevention Strategies
- If All Else Fails

Troubleshooting Liquid Chromatography Systems

- System Components
- Design Characteristics
- Potential Problems
- Symptoms and Solutions

Open Discussion

Course Length: 1 or 2 days

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Introduction to Gas Chromatography

Understanding Your GC

Most new chromatography analysts have little or no understanding of modern gas chromatography. This seminar will provide the knowledge they need to effectively operate their instrument. It offers an introduction to the basics of GC and the design of the instrumentation. The presentation emphasizes the practical aspects of the technique, not just theory.

Students will learn about:

- The basic operating principles of gas chromatography
- The design of GC components
- The basic rules for operating and maintaining their GC systems

Outline

Introduction to Chromatography and GC

What is GC?

The Chromatographic Process

Definitions

GC Instrumentation

Inlets

Columns - Packed and Capillary

Detectors

Operating your GC

Flow

Pressure

Temperature

Film thickness

Other options

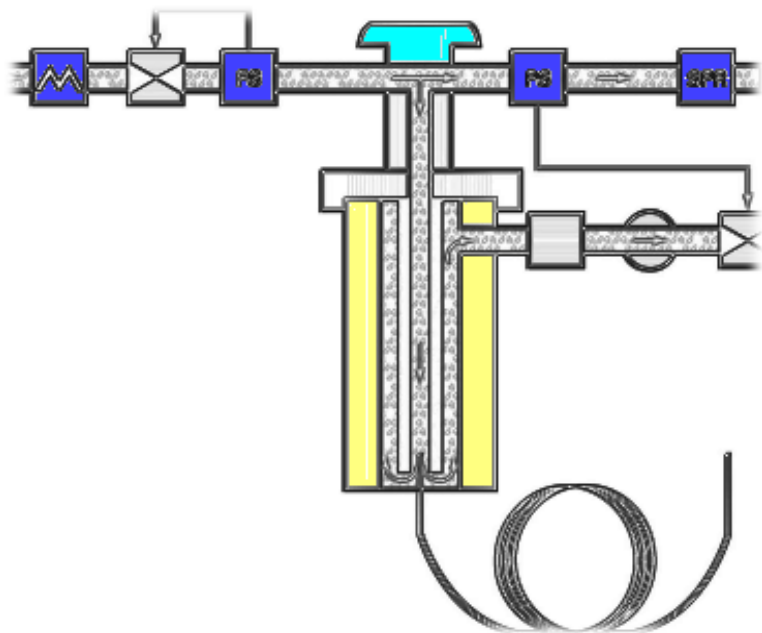
Troubleshooting your GC

Identifying symptoms and their sources

Prerequisite: Basic understanding and experience with gas chromatography (0 - 3 years).

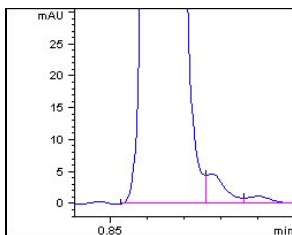
Course Length: 1 Day

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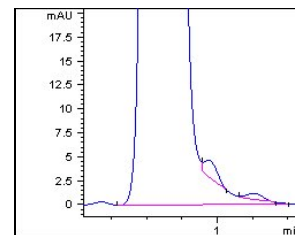


Integrating Chromatographic Peaks

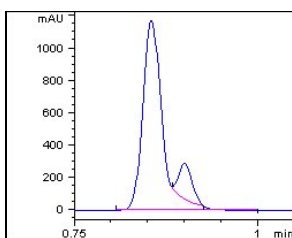
What is the best way to integrate this chromatogram?



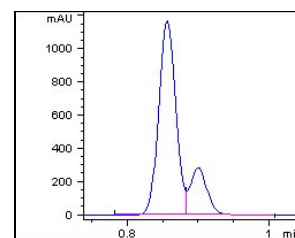
One method produces a positive error of more than 100% for the first small peak. The other method generates a negative error of more than 50% for the same peak.



What about this situation, where one peak is a shoulder on the back side of a larger peak?



One method gives a fairly accurate answer (within 5%). The other method reports a peak area that is in error by more than 30%!



Take this seminar and learn the answers to these questions!

Integration of chromatographic peaks is a critical step in the generation of chromatographic data. Errors in integration will result in a corresponding error in calculated results. Unfortunately, most analysts have little or no training in the proper procedures for peak integration. We will first discuss, in general terms, how integrators work. Then, peak integration issues will be examined using sets of real chromatographic data to illustrate when to use different integration strategies (drop, valley, etc.). We will discuss a variety of situations involving poorly resolved chromatographic peaks.

Are you dealing with peaks of similar size, or doing trace analysis? One integration method won't be accurate for all situations. You need to know which method to use under each set of conditions. You will only learn it here!

Students will learn about:

- How chromatographic integrators work
- Options for integrating poorly resolved chromatographic peaks
- Errors associated with different integration options

Outline

- Integration Basics
 - Resolution, Analog and Digital Signals, Peak Detection Algorithms
 - Integration Settings and Parameters
- Integration Options
 - Perpendicular Drop, Valley-to-Valley, Shoulders
- Integration Errors for different peak size ratios and resolutions
- Complex Problems: Noise, Tailing, Unresolved Peaks, Baseline Problems

Course Length: 1/2 day

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Introduction to the Agilent 1100/1200 LC and ChemStation® Software

**Can't make it to an off-site course?
Have the course come to you!**

This is our most complete collection of training materials for both HPLC and the Agilent instruments. Call us to take advantage of our many years of experience in training on these instruments.

The Agilent 1100/1200 HPLC's are great instruments. But if you don't have extensive experience with this equipment design, you can't just unpack it and start using it effectively. You need to know how the instrument is designed, how the software is organized, and how the two work together. If you already have this equipment, you realize that new users in your lab will need some help learning the system.

In the past there was only one option: travel to an off-site course, usually at only one or two sites around the country, and on a fixed date. Now you have another choice: on-site and hands-on training from ACCTA, Inc. in your laboratory on a date that you select.

This four day on-site course gives you all the advantages of an off-site course, but it is at your location, using your instrument. Not only do you save on travel time and costs, but the cost per person is less than what you would spend at an off-site course (including registration and travel). You get the best training from an experienced instructor, without leaving your lab!

Students will realize the following benefits from this course:

- Design, maintenance, and troubleshooting the 1100 and/or 1200 HPLC.
- Basic organization of the ChemStation.
- Operation of the HPLC using ChemStation software - learning how to use all the integration, calibration, automation, and reporting features of the software, for versions A.xx and B.xx.

Outline:

Day 1

Introduction to Liquid Chromatography

HPLC Equipment

Introduction to the 1100 Modules

Introduction to ChemStation Software

Routine Maintenance for the 1100

Lab: Introduction to the 1100/1200 and ChemStation (Design, Basic Operation, Maintenance)

Lab: Acquisition Methods

Day 2

Editing Methods

Exploring Signal and Spectral Options

Integrating Chromatographic Peaks

Lab: Integrating Chromatographic Peaks

Calibration Basics and Calibrating with the ChemStation

Reporting

Lab: Setting Up and Using Calibration Curves

Day 3

Introduction to Sequences and Automation

Lab: Setting Up a Simple Sequence

Advanced Sequence Capabilities and Reprocessing

Lab: Reprocess a Sequence

Introduction to LC Troubleshooting - Part 1

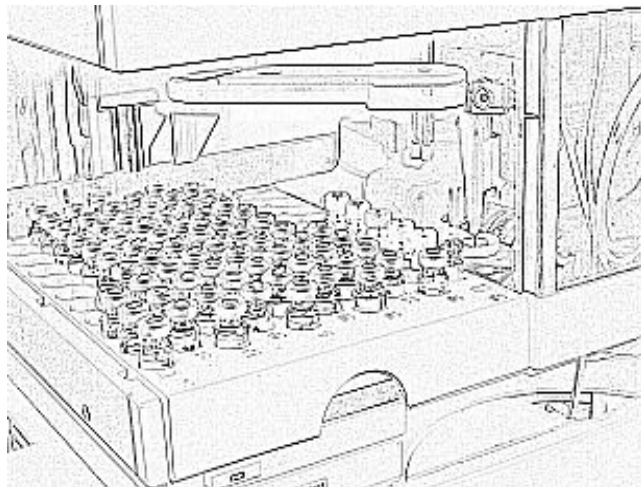
Day 4

Introduction to LC Troubleshooting - Part 2

Operating Issues in HPLC - Getting the Most from your LC

Introduction to Method Development

Lab: Other Column Configurations, Gradient Separations, Selectivity



We Provide:

Course notes and laboratory manual

An experienced, full-time instructor

HPLC columns to use for the laboratory experiments

Test mixes to use for the laboratory experiments

Training certificate for each student

You Provide:

A lecture room with LCD projector for classroom sessions

An Agilent 1100 or 1200 with a binary or quaternary pump and absorbance detector and autosampler vials (detectors available at extra charge)

HPLC grade water and acetonitrile

Course Length: 4 days

(Note: The course will end early each day, allowing students time to deal with on-site issues. The class will end early in the afternoon on Day 4.)

Note: ChemStation® is a registered trademark of Agilent Technologies, Inc. This presentation was prepared by ACCTA, Inc. and has not been reviewed or endorsed by Agilent Technologies.

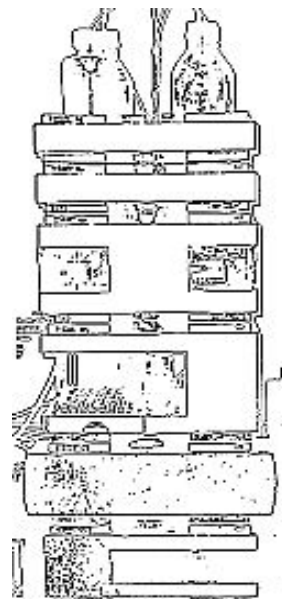
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Maintenance for the Agilent 1100 & 1200 HPLC Systems

The Agilent 1100/1200 HPLC's are great instruments. But if you don't know how to service the modules and troubleshoot problems, you are likely to have a significant failure. Or, you will be spending money on a service contract to do things that you could do yourself!

In the past there was only one option: travel to an off-site course, usually at only one or two sites around the country, and on a fixed date. Now you have another choice: on-site and hands-on training from ACCTA, Inc., in your laboratory on a date that you select.

This one day on-site course gives you all the advantages of an off-site course, but it is at your location, using your instrument. Not only do you save on travel time and costs, but the cost per person is less than what you would spend at an off-site course (including registration and travel). You get the best training from an experienced instructor, without leaving your lab!



Students will learn about:

- Maintenance, and troubleshooting the 1100 and/or 1200 HPLC.
- Basic organization of the ChemStation and Controller as they relate to maintenance issues.
- HPLC troubleshooting - a complete discussion, including real world examples.

Outline:

A complete discussion of maintenance issues related to:

- General Maintenance Philosophies
- Mobile Phases and the Solvent Degasser
- Pumps
- Autosampler
- Column Compartment
- Detectors

Troubleshooting LC Systems

- Symptoms and Solutions
- Real-world Examples (Quiz)

Hands-on discussion and demonstrations

We Provide:

- Course notes and laboratory manual
- An experienced, full-time instructor
- Training certificate for each student

You Provide:

- A lecture room with LCD projector for classroom sessions
- An Agilent 1100 or 1200 for laboratory demonstrations

Course Length: 1 day

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Introduction to the Agilent ChemStation®



*Improve your lab's efficiency!
Learn to use the ChemStation effectively!*

The Agilent ChemStation® is one of the most popular software packages in analytical laboratories. However, the extensive capabilities and complexities of the software can make it difficult to learn. This seminar will provide an introduction to the features that are used most often in the typical analytical laboratory. In a few short hours you will feel comfortable with the basic features of the software and how to use it efficiently. Both GC and LC versions are available.

Following the lecture session, the seminar group will proceed to the lab, where we will work with your methods and instruments. We will use the tools provided in lecture to begin optimizing your methods and provide the hands-on training necessary to complete the learning process.

Students will learn about:

- The organization of the ChemStation software
- The basic features of the software
- The steps needed to set up a simple method for data acquisition, analysis, and reporting.

Outline:

Using the ChemStation in a Windows® environment

ChemStation "Views"

Editing methods

Setting up and running sequences

Batches and Batch Review

Optimizing integration settings

Setting up and using calibration tables

Reporting options and the Report Layout View

Hands-on method review, optimization, and consulting in your laboratory

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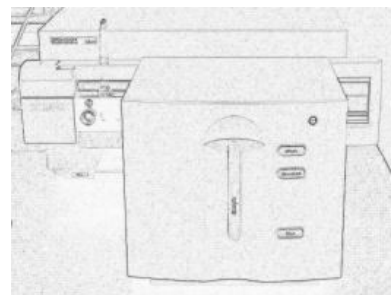
Course Length: 1 day

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Introduction to the Agilent 8453 UV-VIS Spectrophotometer and ChemStation Software

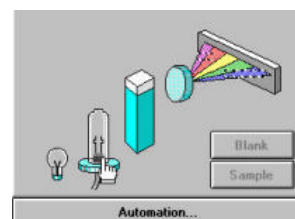
*Improve your efficiency and data quality!
Learn to use this instrument and its software effectively!*

This two-day seminar provides a complete description of the Agilent 8453 UV-VIS spectrophotometer and the ChemStation operating software. Starting from the basic principles of absorbance spectrophotometry, the student will be shown how to get the instrument and samples ready for analysis, and what options are available for calibrating the instrument as well as analyzing samples. Both the standard and advanced features of the instrument and software will be discussed. Laboratory "hands-on" sessions with the instructor allow more time for interactive discussion, demonstration, and problem-solving (laboratory access to instrument required).



Students will learn about:

The organization of the ChemStation software
The basic features of the instrument and software
The advanced features of the software



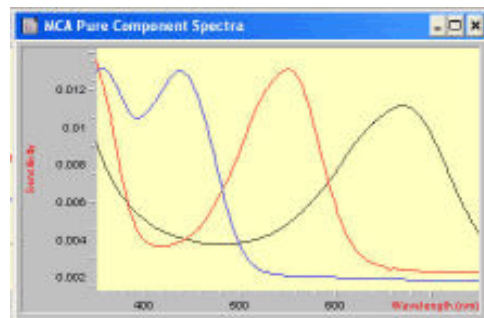
Outline:

Day 1

- Why UV-VIS?
- Basics of Absorbance Spectrophotometry
- Introduction to 8453 Hardware
- Good Measurement Practices
- Introduction to ChemStation Software
- Other Operating Hints
- Basic Operating Procedures
- Diagnostics and Troubleshooting
- Basic Applications
- Hands-On Laboratory Discussion and Demonstration (Time permitting)

Day 2

- Using the Advanced Mode Features of the ChemStation
- Getting Ready for Analysis
- Data Processing Options
- Single Data Analysis (Single Component Analysis)
- Multiple Data Analysis
- Confirmation Analysis
- Multiple Component Analysis
- Optimize
- Automation
- Special Features and Operating Modes: Dissolution, Kinetics
- Hands-On Laboratory Discussion and Demonstration



Course Length: 2 days

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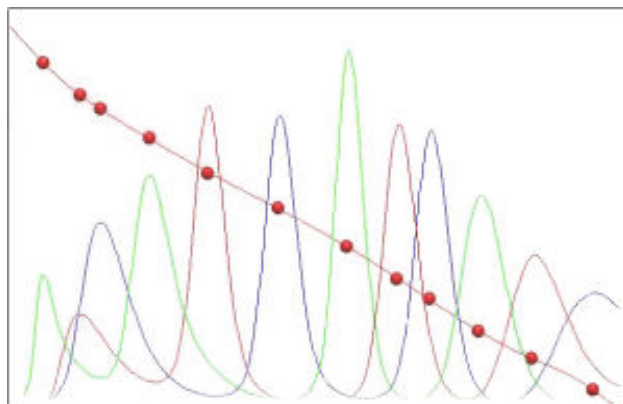
Agilent GPC Software

Agilent's GPC software for the 1100 and 1200 HPLC systems is an add-on to the standard ChemStation software. As is typical for most complex software packages, documentation is not very helpful. But like most parts of the ChemStation, the add-on is easy to use, but not intuitive to learn!

Until now there was no training available for this software add-on. Now ACCTA, Inc. has developed a concise, three-hour presentation about this software package - how it is organized, how it works, and how to get it to work for you.

Outline

A brief introduction to GPC theory.
The GPC interface in the ChemStation
The GPC software add-on
Setting up calibration files using narrow standards
Running samples and standards
 Automated and manual procedures
Analyzing data files
Options for changing the displays
In-lab demonstration and discussion on your instrument.



Looking for a cost-effective option? Try an On-Demand Webinar of this topic, or join one of our scheduled webinars.

Course Length: 1 Day

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Instructors

Merlin K. L. Bicking, Ph.D.

Merlin Bicking is currently President, ACCTA, Inc. and provides consulting and training services for clients in the food, pharmaceutical, manufacturing, biomedical device, scientific instrument, environmental testing, and water purification device industries. He has worked for Twin City Testing Corporation (Technical Director of the Chemistry Department), and Battelle Memorial Institute (Principal Research Scientist and manager of the HPLC laboratory). He has also served as Assistant Professor of Chemistry at the State University of New York-Buffalo. His professional experience includes more than 20 years in analytical problem-solving, method development, and project management. He was one of the first researchers to demonstrate the practical application of lasers in analytical chemistry, and has authored two U.S. Environmental Protection Agency methods (Method 8315, Formaldehyde and Method 548, Endothall). Dr. Bicking was also the first to report the use of supercritical fluid extraction (SFE) for determination of Oil and Grease, and the first to use statistical experimental design strategies for SFE optimization. He has delivered more than 40 presentations at local, national, and international meetings, and published more than 20 articles in peer-reviewed journals. He received a B.S. in Chemistry from the University of Wisconsin-River Falls, and a Ph.D. in Organic-Analytical Chemistry from Iowa State University.

Dr. Bicking is an instructor for:

- Advanced Topics in Liquid Chromatography
- Analytical Calibration techniques
- Analytical Laboratory Techniques
- Integrating Chromatographic Peaks
- Introduction to Liquid Chromatography
- Introduction to Gas Chromatography
- Practical Laboratory Statistics
- Sample Preparation - The Chemistry Behind the Techniques
- Troubleshooting Chromatographic Systems
- Agilent software and hardware courses

Contact Dr. Bicking at (651) 731-3670.

Other instructors are used on an as needed basis and have similar credentials.

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