

Gas Chromatography**N020-0421****3 Days****Tuition £950**

This course is designed for the beginner who has no experience with gas chromatography. It provides background information on the principles of gas chromatography, column selection and basic instrument operation so that the user gains confidence in using the technique. The course is a combination of lectures and practical sessions.

Prerequisites

There are no special entry requirements, although a working knowledge of basic analytical techniques would be an advantage.

Lectures and Labs

- Simple gas chromatography theory
- Pneumatic controls
- Column selection
- Injectors and injection techniques

The course duration is three days, starting at 9:30 and ending at 16:30.

Please visit www.perkinelmer.com/service for registration options and cancellation/refund policies.

GC Method Development Training**L020-0423****2 Day****Tuition****£730**

The course gives the attendee a start in developing a GC-based analytical method for their particular application. It is not intended that a complete method will be developed during the two days, but that the majority of the work could be completed and that an outline of further work is available for the attendee to complete in their own laboratories. A complete range of PerkinElmer instrumentation will be available during the two days for method development.

Prerequisites

The attendee should have at least one month of experience in a GC laboratory, and should have attended the basic Gas Chromatography course before attending this course. To obtain full benefit from the course, all details of the application should be supplied to PerkinElmer at least four weeks prior to the start of the course.

Lectures and Labs

- Basic principles of method development
- Method validation requirements
- Practical work

The course duration is two days, starting at 9:30 and ending at 16:30.

Clarus™ 500 GC Familiarization**L020-0431****1 Day****Tuition****£385**

The course is for new users of the Clarus 500 gas chromatograph. It covers the operation of the instrument through the Clarus 500 touch screen, installation of capillary columns, setting up of programmable pneumatic control (PPC) and the routine user maintenance of injectors, detectors and the autosampler. Also covered is control of the Clarus 500 through TotalChrom Workstation but TotalChrom data processing functions will not be covered.

Prerequisites

Attendees should have some experience with the Clarus 500 gas chromatograph and TotalChrom software. However, the course is designed for first-time users and will assume no previous knowledge of gas chromatography.

The course duration is one day, starting at 9:30 and ending at 16:30.

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Clarus™ 500 GC with ECD Familiarization**L020-0433****1 Day****Tuition****£385**

This course is for the new user of the Clarus 500 gas chromatograph but pays special attention to its use with an electron capture detector. It covers the operation of the instrument through the Clarus 500 touch screen, installation of capillary columns, setting up the programmable pneumatics control (PPC) parameters affecting the operation of an electron capture detector and the routine user maintenance of injectors, detectors and the autosampler. The course will also cover instrument control of the Clarus 500 through TotalChrom Workstation. TotalChrom data processing functions will not be covered.

Prerequisites

The attendee should have some experience with the Clarus 500 gas chromatograph and TurboChrom software. However, the course is designed for first-time users and will assume no previous knowledge of gas chromatography.

Lectures and Labs

- Overview of gas chromatography
- Types of injectors
- Overview of programmable pneumatics control (PPC)
- Capillary column installation

The course duration is one day, starting at 9:30 and ending at 16:30.

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**Techniques and Practical Applications
of Thermal Desorption****L020-0440****1 Day****Tuition****£385**

This course is for the user who has no experience in thermal desorption, and it consists entirely of lectures. The course provides background information on the principles of thermal desorption and the sampling procedures associated with it. It is run in conjunction with the TurboMatrix ATD Familiarization and Clarus 500 Familiarization courses, both of which complement this course.

Prerequisite

The attendee should have at least one month of experience with gas chromatography.

Lectures

- Theory of thermal desorption
- Workplace and environmental sampling
- Pumped sampling
- Diffusive sampling
- Diffusive uptake rates
- Liquid samples

The course duration is one day, starting at 9:30 and ending at 16:30.

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TurboMatrix™ ATD Instrument Familiarization**L020-0441****1 Day****Tuition****£385**

This course is for new users of the TurboMatrix TD and ATD. The course is based around the instrument and provides the attendee with a basic understanding of how the TurboMatrix system works. It offers practical, hands-on experience in performing routine tasks such as packing sample tubes, changing and repacking the cold trap, and changing tube seals.

Prerequisite

The attendee should have some experience with thermal desorption techniques and have a working knowledge of the PerkinElmer Clarus 500. Alternatively, candidates should consider the following courses as prerequisites for attending this course:

- Techniques of Thermal Desorption
- Clarus 500 Familiarization

Lectures

- Method parameters
- Method storage
- Setting the desorption and split flows
- Method linking
- Understanding run deviations

The course duration is one day, starting at 9:30 and ending at 16:30.

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Theory of Headspace and TurboMatrix HS Familiarization**L020-0451****2 Days****Tuition £730**

The course is for the user who has no experience in headspace gas chromatography. Lectures include an understanding of the theory of headspace gas chromatography and the requirements for calibration of the total system. This is enforced using practical work to demonstrate the effects of carrier gas inlet pressure, injection times, split ratios on the peak areas and a study of the matrix effects on headspace analysis. System calibration using simple mixtures are included, together with routine maintenance requirements specific to headspace gas chromatography. Although the course is of primary interest to the TurboMatrix HS and the practical work will use the TurboMatrix HS, it would also be of benefit to users of earlier PerkinElmer headspace systems such as the HS 40, HS 40XL, HS6, HS100 and HS101.

Prerequisites

The attendee should have a working knowledge of gas chromatography.

Lectures and Labs

- The headspace partitioning process
- The theory of pressure balanced headspace sampling
- Sample sensitivity enhancement
- Calibration
- Headspace parameters
- Troubleshooting
- Constant, progressive and multiple headspace sampling
- Quantitative requirements
- Routine maintenance of TurboMatrix HS
- Complementary Courses
- AutoSystem Familiarization
- Basic Gas Chromatography

The course duration is two days, starting at 9:30 and ending at 16:30.

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GC-MS Basic Instrument Familiarization**L020-0465****2 Days****Tuition £730**

This course is for the new user of the Clarus 500 mass spectroscopy detector for the Clarus 500 gas chromatograph, TurboMass Gold or TurboMass mass spectroscopy detectors for the Autosystem XL. Some basic mass spectroscopy theory is covered, but the emphasis of the course covers the practical aspects of obtaining chromatograms and identifying and quantifying components in the chromatogram using electron ionization. The course contains a mixture of lectures and practical labs.

Prerequisites

The attendee should have at least one month of experience with a gas chromatograph and a working knowledge of basic gas chromatography.

Lectures and Labs

- Theory of the operation
- GC requirements for MS
- General precautions
- Column installation
- Tuning and calibration of the MS

The course duration is two days, starting at 9:30 and closing at 16:30.

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GC-MS Advanced Instrument Familiarization**L020-0466****1 Day****Tuition £385**

This course is for those users who have some experience with the Clarus 500 mass spectroscopy detector for the Clarus 500 gas chromatograph, TurboMass Gold or TurboMass mass spectroscopy detectors for the Autosystem XL GC. Topics covered include using the MS and FID in parallel, an introduction to chemical ionization and routine maintenance of the inner source, pump and operating systems.

Prerequisites

The attendee should have at least one month of experience with a gas chromatograph and a working knowledge of the MS. This course follows the Introduction to GC-MS Basic Instrument Familiarization course and may be attended immediately after attending the introduction to the basic course.

Lectures and Labs

- Operation of MS with a FID
- Chemical ionization

The course duration is one day, starting at 9:30 and ending at 16:30.

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