



Thermo Fisher Scientific training courses

The key to your laboratory's success

Training programme Belgium, Netherlands,
Luxembourg

Invest in yourself

People are the most valuable assets in any lab. We offer comprehensive, professional training and certification through a complete course portfolio that can help you achieve the most from your instrumentation and results.

Our ultimate goal is to provide you with a total solution for your analytical needs, and so we offer a wide range of training courses on:

- Instrument operation – hardware and software
- Instrument maintenance
- Software and applications

Optimal classroom settings and world-class instructors will enhance your learning experience and allow you to gain greater productivity. As experts in their disciplines, our experienced specialists can provide a variety of education solutions to ensure that students are able to get the most value from their investment and achieve relative practical and theoretical knowledge. A range of venues are available for your convenience: Customer site, remote or at one of our Demo Centres.

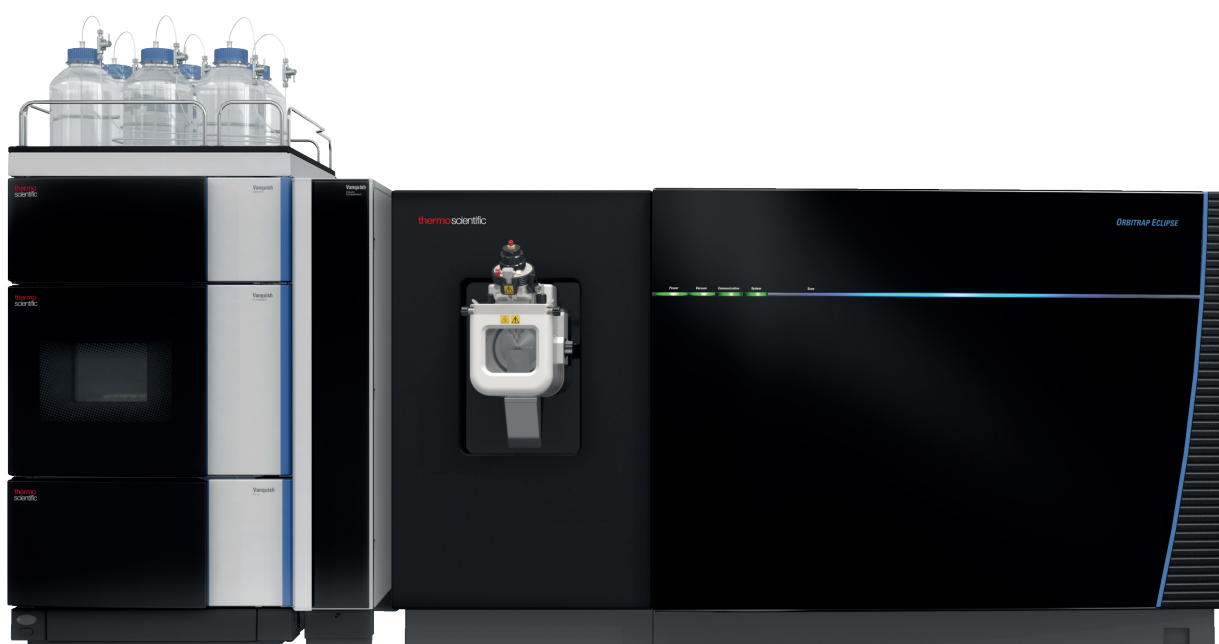
We look forward to discussing your training needs and working with you to ensure your success with our products.

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Life Sciences Mass Spectrometry

Invest in Yourself. Whether you would like to enhance your learning experience or gain greater productivity, the Life Sciences Mass Spectrometry courses are designed to ensure each student has time to address their specific topics of interest. The courses offer both practical and theoretical training and are taught by experienced and certified instructors.



TSQ operations training courses

For both experienced and new users of our Thermo Scientific™ TSQ™ Triple Quadrupole MS instrument operations portfolio we offer both practical and theoretical training courses taught by experienced and certified instructors. Course sizes are always kept to a minimum to ensure each participant has access to instruments during practical training, as well as time to address their specific topics of interest. Each training module can be delivered via one of our three training pillars so that you can choose the most suitable training method for you.



Remote training will be delivered as one or multiple 3-hour sessions focusing on customers hardware or software needs.



All training options can be supplemented by additional customer site training tailored to your needs.

TSQ operations training courses

Course objective:

For the less experienced TSQ MS instrument user or those wishing to update their skills further, this course covers the fundamentally important concepts behind instrument hardware, calibration, compound optimization and method development as well as software packages. The focus of this course is to cover the whole TSQ MS instrument workflow for small molecules, however customers interested in focused areas or peptide/protein quantitation should contact the team regarding remote/customer site training options.

The course material includes:

- General QQQ theory with focus on TSQ MS instrument
- TSQ MS instrument hardware components
- Instrument maintenance
- Tune page control and calibration
- Instrument control
- Compound optimisation and method creation/development
- Quantitation using software packages Thermo Scientific™ Chromeleon™ Chromatography Data System (CDS) and Thermo Scientific™ TraceFinder™ software (highlighting differences between two platforms)
- Result reporting options

This course can be offered on demand at **Customer Site**.



TSQ operations training courses

Training: TSQ operations remote session

Course objective:

For users starting out on TSQ MS instrument platforms or users wishing to increase their knowledge this course can cover all the options previously listed in the Demo Centre session but is done remotely. The qualified instructor will host a video call to cover the training, and where possible can even gain remote access to your labs instrument. The course can be setup as individual or multiple three-hour sessions depending on the customer's request/needs.

This course can be run at dates organized on demand **remotely**.



Q Exactive operations

For experienced and new users to our Thermo Scientific™ Q-Exactive™ MS instruments, we offer both practical and theoretical training courses taught by experienced and certified instructors. Course sizes are always kept to a minimum to ensure each participant has access to instruments during practical training, as well as time to address their specific topics of interest.

Each training module can be delivered via one of our two training pillars so that you can choose the most suitable training method for you.



Remote training will be delivered as one or multiple 3-hour sessions focusing on customers hardware or software needs.



All training options can be supplemented by additional customer site training tailored to your needs.

Q Exactive operations

Training: Q Exactive operations

Course objective:

The aim of this training course is to familiarize the new Q Exactive instrument user with Thermo Scientific™ Orbitrap™ technology. The training agenda covers API, quadrupole and Orbitrap technology theory, tuning, calibration, data collection and general functionality of the Thermo Scientific™ Xcalibur™ software and Chromeleon CDS software. The emphasis of the training course is on small molecule analysis both from a qualitative and quantitative point of view.

The course material includes:

- API, quadrupole and Orbitrap technology theory
- Q Exactive MS instrument hardware components
- Tuning and calibration
- Qualitative method set up and processing in Thermo Scientific™ Freestyle™ software
- Quantitative method set up
- Troubleshooting and maintenance

This course can be run on demand **remotely** or at a **customer site**.



Exploris operations

For experienced and new users to our Thermo Scientific™ Orbitrap Exploris™ MS instruments, we offer both practical and theoretical training courses taught by experienced and certified instructors. Course sizes are always kept to a minimum to ensure each participant has access to instruments during practical training, as well as time to address their specific topics of interest.

Each training module can be delivered via one of our three training pillars so that you can choose the most suitable training method for you.



Remote training will be delivered as one or multiple 3-hour sessions focusing on customers hardware or software needs.



All training options can be supplemented by additional customer site training tailored to your needs.

Exploris operations

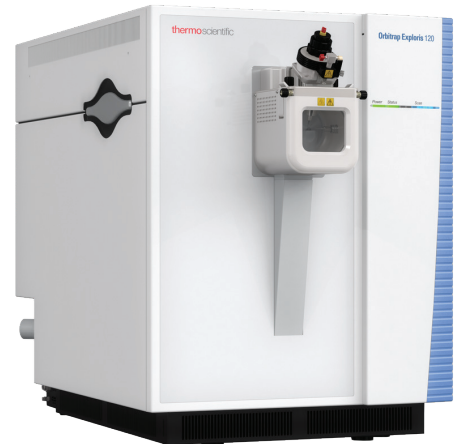
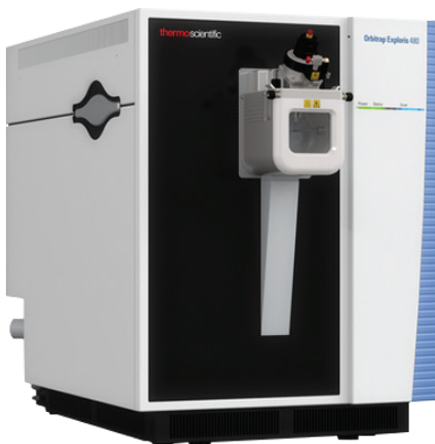
Course objective:

The aim of this training course is to familiarize the new Exploris MS user with Orbitrap technology. The training agenda covers API, quadrupole and Orbitrap technology theory, tuning, calibration, data collection and general functionality of the Xcalibur software or Chromeleon CDS software. The emphasis of the training course is on small molecule analysis both from a qualitative and quantitative point of view.

The course material includes:

- API, quadrupole and Orbitrap technology theory
- Instrument hardware components
- Tuning and calibration
- Qualitative method set up and processing in Freestyle software
- Quantitative method set up
- Troubleshooting and maintenance

This course will be run on demand at a **customer site**.



Exploris operations

Training: Exploris operations remote

Course objective:

For users starting out on Exploris MS instrument platforms or users wishing to increase their knowledge. This course can cover all the options previously listed in the Demo Centre session but is done remotely.

The qualified instructor will host a video call to cover the training, and where possible can even gain remote access to your labs instrument. The course can be setup as individual or multiple 3-hour sessions depending on the customer's request/needs.

This course can be run on demand **remotely**.



Tribrid operations

For experienced and new users to our Thermo Scientific™ Orbitrap Fusion™ Tribrid™ MS instruments, we offer both practical and theoretical training courses taught by experienced and certified instructors. Course sizes are always kept to a minimum to ensure each participant has access to instruments during practical training, as well as time to address their specific topics of interest.

Each training module can be delivered via one of our three training pillars so that you can choose the most suitable training method for you.



Remote webinar training will be delivered as one or multiple 3-hour sessions focusing on customers hardware or software needs.



All training options can be supplemented by additional customer site training tailored to your needs.

Tribrid operations

Training: Tribrid operations

Course objective:

The Tribrid MS instrument operations course is designed for users that have previous LC-MS experience and would like to familiarize themselves with the Tribrid MS instrument. The course will cover API and ion trap theory, tuning, calibration, data collection, general functionality of the Xcalibur software. The emphasis of the training is on **small molecule** analysis, accurate mass applications.

The course material includes:

- Dual pressure linear ion trap, quadrupole and Orbitrap technology theory
- Basic tune and calibration
- Compound tuning for MS and MS/MS purposes
- Data dependent method design
- Accurate mass methods
- Parallel detection methods
- Introduction to elemental composition and structure elucidation
- Freestyle software

This course can be run on demand throughout the year **remotely** or at **customer site**.



Q Exactive proteomics

For experienced and new users to our Q Exactive MS instruments, we offer both practical and theoretical training courses taught by experienced and certified instructors. Course sizes are always kept to a minimum to ensure each participant has access to instruments during practical training, as well as time to address their specific topics of interest.

Each training module can be delivered either as customer site training or remotely so that you can choose the most suitable training method for you.



Remote webinar training will be delivered as one or multiple 3-hour sessions focusing on customers hardware or software needs.



All training options can be supplemented by additional customer site training tailored to your needs.

Q Exactive proteomics

Training: Q Exactive series proteomics applications

Course objective:

These courses are designed for users that have previous LC-MS experience and are interested in protein and peptide analysis. All courses are instrument specific for the Q Exactive, Q Exactive Plus, Q Exactive HF, or Q Exactive HF-X MS instruments.

Basic core training (2×3-hour module):

- Hardware overview and theory
- Instrument calibration and maintenance
- Method editor focusing on data dependent methods
- Data Dependent acquisition (DDA) method design
- Viewing and evaluating raw data in Freestyle software
- Quality control and troubleshooting of DDA methods

Quantification using label free quantification (LFQ) and TMT labeling (3-hour module)

Data independent acquisition (DIA) and quantification (3-hour module)

Targeted quantification (3-hour module)

Training in specialist applications such as Intact protein and xlinking analysis are available as modules on request.

These courses can be run on demand **remotely** or as part of a **customer site** training.



Exploris proteomics

For experienced and new users to our Exploris MS instruments, we offer both practical and theoretical training courses taught by experienced and certified instructors. Course sizes are always kept to a minimum to ensure each participant has access to instruments during practical training, as well as time to address their specific topics of interest.

Each training module can be delivered via one of our three training pillars so that you can choose the most suitable training method for you.



Remote webinar training will be delivered as one or multiple 3-hour sessions focusing on customers hardware or software needs.



All training options can be supplemented by additional customer site training tailored to your needs.

Exploris proteomics

Training: Exploris series proteomics applications

Course objective:

These courses are designed for users that have previous LC-MS experience and are interested in protein and peptide analysis. All courses are specific for the Exploris 120, 240 and Orbitrap Exploris 480 MS instruments including training in Thermo Scientific™ FAIMS Pro™ interface if needed.

Basic core training (3×3-hour modules):

- Hardware overview and theory
- Instrument calibration and maintenance
- Method editor focusing on data dependent method design
- Viewing and evaluating raw data in Freestyle software
- Quality control and troubleshooting of DDA methods

Data dependent quantification using TMT labeling (3-hour module)

Data dependent quantification using label free quantification (LFQ) (3-hour module)

Data independent acquisition (DIA) and quantification (3-hour module)

Basic Targeted quantification (3-hour module)

Training in specialist applications such as Intact protein, advanced targeted quantification, and xlinking analysis are available as modules on request.

These courses can be run on demand **remotely** or at **customer site**.



BioPharma operations

Training: BioPharma operations

Course objective:

The aim of this training course is to familiarize the new Orbitrap Exploris MS/Q Exactive Biopharma platform instrument user with Orbitrap technology. The training agenda covers API, Quadrupole and Orbitrap technology theory, tuning, calibration, data collection and general functionality of the Xcalibur software or Chromeleon CDS software. The emphasis of the training course is on Thermo Scientific™ BioPharma Finder™ software analysis both from a qualitative and quantitative point of view.

The course material includes:

- API, quadrupole and Orbitrap technology theory
- Exploris/Q Exactive MS instrument hardware components
- Tuning and calibration
- Qualitative method set up and processing in Freestyle software
- Quantitative method set up
- Troubleshooting and maintenance
- Intact protein and top down analysis
- Peptide mapping analysis
- Chromeleon CDS and BioPharma Finder software data processing

This course can be scheduled on demand **remotely** or at a **customer site**.



Tribrid proteomics

For experienced and new users to our Fusion Tribrid MS instruments, we offer both practical and theoretical training courses taught by experienced and certified instructors. Course sizes are always kept to a minimum to ensure each participant has access to instruments during practical training, as well as time to address their specific topics of interest.

Each training module can be delivered via one of our three training pillars so that you can choose the most suitable training method for you.



Remote webinar training will be delivered as one or multiple 3-hour sessions focusing on customers hardware or software needs.



All training options can be supplemented by additional customer site training tailored to your needs.



Tribrid proteomics

Training: Tribrid series proteomics applications

Course objective:

These courses are designed for users that have previous LC-MS experience and are interested in protein and peptide analysis. All courses are specific for the Thermo Scientific™ Orbitrap Fusion, Orbitrap Fusion Lumos™ and Orbitrap Eclipse™ MS instruments including training in FAIMS Pro interface if needed.

Basic core training (3×3-hour modules):

- Hardware overview and theory
- Instrument calibration and maintenance
- Method editor focusing on data dependent method design
- Viewing and evaluating raw data in Freestyle software
- Quality control and troubleshooting of DDA methods

Data dependent quantification using TMT labeling (3-hour module)

Data dependent quantification using label free quantification (LFQ) (3-hour module)

Data independent acquisition (DIA) and quantification (3-hour module)

Basic Targeted quantification (3-hour module)

Advanced Targeted quantification for Tribrids (3-hour module)

Training in specialist applications such as Intact protein, Top Down analysis, PTM analysis, and xlinking analysis are available as modules on request.

These courses can be scheduled on demand **remotely** or at **customer site** training.



TraceFinder software

Training: TraceFinder software

Course objective:

TraceFinder software is a package with built-in workflows that have been developed to assist in routine analysis of small molecules applications. The aim of this training course is to enable the users to implement fully automated acquisition and processing workflows. Detailed presentations will be given on all TraceFinder software functionalities together with hands on exercises in order to ensure understanding of all the processes. The software setup, user selection and all the steps necessary for data collection and processing, data analysis and report generation will be covered. This training module can be combined with any of the instrument Operations courses on offer.

This course can be scheduled on demand **remotely**.



Compound Discoverer software

Training: Compound Discoverer software for metabolomics experiments

Course objective:

The aim of this training course is to provide new users with the ability to use the Thermo Scientific™ Compound Discoverer™ software for metabolomics experiments to its full potential.

Compound Discoverer software ensures confident compound identification and structural elucidation in applications as diverse as metabolism, unknown metabolomics, pharmaceutical metabolism, impurity analysis, E&L, forensic toxicology and environmental research. The software helps researchers plan how data will be collected, organized, stored and reported with the final result in mind. Its node-assembled processing workflows, advanced algorithms, and study-oriented data storage allow users to quickly process and assemble data collected from multiple samples into a unified report. This training module can be combined with any of the instrument Operations courses on offer.

The training course will cover all the aspects of the software including:

- Untargeted compound detection with isotope and adduct grouping
- Database searching using mzCloud, Chemspider, KEGG or own databases
- Expected compound search including dealkylation and dearylation predictions and transformation products
- Fragment ion search (FISh) and structure annotations
- Compare with control experiments
- Background handling
- Reporting

This course is organized throughout the year as **remote** webinar training, 3 x 2 h sessions.



Proteome Discoverer software

Training: Proteome Discoverer software

Processing of data dependent data in the latest version of Thermo Scientific™ Proteome Discoverer™ software.

Proteome Discoverer software for novice users (3-hour module):

- Basic data processing – identification using default workflows
- Reviewing results
- Advanced data processing – customizing workflows to utilize more features
- Maximizing IDs

Proteome Discoverer software for intermediate users (3-hour module):

- PTM analysis
- Understanding quantification in Proteome Discoverer software
- Quantification experiment setup for label-free quan (LFQ) and TMT

This courses can be scheduled on demand **remotely**.



BioPharma Finder software

Training: BioPharma Finder software

Course objective:

BioPharma Finder software package used for intact mass, peptide mass fingerprint analysis, top down analysis and oligonucleotide analysis. For biotherapeutic proteins to be effective, they must be produced in biologically active forms with proper folding and post-translational modifications (PTMs). BioPharma Finder software makes it easy to define the target protein sequence, select a proteolytic digest enzyme, and assign known and potential post-translational modifications to search.

The aim of this training course is to provide new users with the ability to use the software to its full potential. The user will be able to create automated workflows necessary for an in-depth characterization of biotherapeutic proteins (glycopeptides identification, disulfide bond mapping, quantification of PTM's including oxidation, deamidation, phosphorylation). The users will also learn how to perform error tolerant and amino acid substitution searches as well as processing peptide mapping raw data.

BioPharma Finder software significantly improves the identification and characterization of intact proteins from mass spectrometric data. Detailed presentations will be given on all the options available with hands on exercises in order to ensure understanding of all the processes. The course will cover all the steps necessary to the use of the two built-in algorithms (Xtract and ReSpect), data processing options, deconvoluted data handling and reporting.

This course can be scheduled on demand **remotely**.



TurboFlow technology

Training: automated online sample preparation using TurboFlow technology

Course objective:

The aim of this training course is to familiarize the new user with Thermo Scientific™ TurboFlow™ technology that can be used in conjunction with Thermo Scientific mass spectrometers and allows elimination of manual sample preparation techniques. The training will cover the theory of turbulent flow chromatography, hardware setup and maintenance, method development and data acquisition. The students will be guided through all principles of operation and hands on examples will be used for successful method development.

The course material includes:

- Theory of turbulent flow chromatography
- Hardware set up: Autosampler, injector ports, loading and eluting pumps, multiple column module (MCM), quick elution (QEM) vs focus mode (FM) set up
- Acquisition and processing software: Method creation, batch set up, automated method variables optimization
- Application set up: Column selection, loading-elution and transfer parameter setting, method variables, multiplexing, high-throughput

This course can be scheduled on demand **remotely** or at **customer site**.



EQuan technology

Training: Large volume injection using EQuan technology

Course objective:

The aim of this course is to familiarize the new user with the Thermo Scientific™ EQuan™ technology large volume injection technique. The training will cover the principles of operation and hardware setup to achieve ultra-low limit of detections in challenging residual detection methods in conjunction with high- and low-resolution mass spectrometric detection. In addition, the theory of the method, hardware setup and maintenance, method setup and optimisation and data acquisition is discussed. All considerations with respect to large volume injections will be discussed. This training module can be combined with any of the instrument operations courses on offer.

This course can be scheduled on demand **remotely** or at **customer site**.



Chromatography

Real-world knowledge. For experienced and new users to our extensive line of Chromatography instruments, we offer both practical and theoretical training courses taught by experienced and certified instructors. Course sizes are kept to a minimum to ensure each student has access to instruments, as well as time to address their specific topics of interest.



Chromeleon CDS

For new and experienced users to Chromeleon 7.2 and 7.3 CDS software, we offer instructor led classes as well as workshop based full day classes. The courses are taught by experienced and certified instructors. Utilizing the latest technology, the courses are run remotely using the cloud, where you will be able to access our remote Chromeleon CDS software installation and follow along with the instructor. This allows you to attend the class from any PC whether that's in the office, laboratory or at home with no additional software required. Then via video link and course material sent to you, you will be able to follow along with the instructor. Course sizes are always kept to a minimum to ensure each participant has access to their own remote session, as well as time to address your specific topics of interest.

Each training module can be delivered via one of our three training pillars below so that you can chose the most suitable training method for you.



Training will be delivered as 1 day course at Thermo Scientific Demo Centre.



Remote webinar training will be delivered in a single 3-hour session. Remote training and support can be tailored to customer needs, including Q&A session for more experienced users, revision of existing data, or any other bespoke setup.



All training options can be supplemented by additional customer site training tailored to your needs.



Online training options allow users to learn at their own pace with easy to follow training modules.



Chromeleon CDS – Full training course

Training: Introduction to Chromeleon CDS – Level 1

Course objective:

This course has been designed for chromatographers who are new to the Chromeleon CDS software and need a comprehensive overview. For this workshop driven course, you will dial into one of our remote cloud Chromeleon CDS software installations and be guided through the course by one of our experienced trainers via a video-link.

The course material includes:

- Navigating in the Chromeleon CDS software console
- Data processing
- Setting up analysis
- Manual integration of peaks
- Executing an eWorkflow
- Report designer
- Navigating in the chromatography studio
- Import and export of data

This course will be run at set dates throughout the year as **remote webinar training**. **Customer site training** is available upon request.



Chromeleon CDS – Full training course

Training: Next steps in Chromeleon CDS – Level 2

Course objective:

This course has been designed for chromatographers who have joined the Chromeleon CDS level 1 training before or have a basic understanding of the Chromeleon CDS software and need a comprehensive overview. You will dial into our remote Chromeleon CDS software installation and be guided through the course by one of our experienced trainers via a video-link.

The course material includes:

- Managing custom variables
- Data processing
- Defining automated system suitability
- Calibration principle
- Intelligent run control actions
- Report designer
- Charts and queries
- Creating an eWorkflow

This course will be run at set dates throughout the year as **remote webinar training**. **Customer site training** is available upon request.



Chromeleon CDS – additional training courses

Training: Chromeleon 7.2/7.3 CDS – Mass Spectrometry

Course objective:

This course has been designed for chromatographers who are new to Chromeleon CDS software utilizing Mass Spectrometry. For this workshop driven course, you will dial into one of our remote cloud Chromeleon CDS software installations and be guided through the course by one of our experienced trainers via a video-link.

The course material includes:

- Navigating the console in MS
- Setting up analysis with MS
- Qualitative data processing with library searching
- Quantitative data processing
- MS filters and channels
- MS reports

This course will be run on demand as **remote webinar training**.



Chromeleon CDS – Additional training courses

Training: Chromeleon 7 eLearning

Course objective:

This self-paced learning plan is designed for chromatographers new to the Thermo Fisher Scientific Chromeleon chromatography data system. Starting from the initial application launch, the course covers all basic aspects of Chromeleon, allowing a new user to perform all steps required to operate their chromatography system and run, process and report samples. Prior experience with Chromeleon is not required, but learners should have a working knowledge of the fundamentals of chromatography, as well as familiarity with Microsoft Windows™.

Duration: 4 hours

Amongst the topics covered in this 35 module eLearning series are:

- How to Launch Chromeleon
- Introduction to the Console
- Introduction to the
- Navigation Panes
- eWorkflows
- How to use DataVaults
- How to use the Help features
- How to import data
- How to create and run sequences
- How to create basic instrument methods
- How to create processing methods
- How to create and use detection parameters
- How to use the Cobra Wizard
- Using Calibration Modes in Chromeleon CDS software
- Printing and Exporting



Ion Chromatography (IC)

For experienced and new users to our extensive line of Ion Chromatography instruments, we offer both practical and theoretical training courses taught by experienced and certified instructors. Course sizes are always kept to a minimum to ensure each participant has access to instruments during practical training, as well as time to address their specific topics of interest. Each training module can be delivered via one of our three training pillars so that you can choose the most suitable training method for you.



At Demo Centre in Breda, training is delivered as two consecutive full days.



Remote webinar training will be delivered as two 3 hour sessions on consecutive days. Remote training and support can be tailored to customer needs, including Q&A session for more experienced users, revision of existing data, or any other bespoke setup.



All training options can be supplemented by additional on site training tailored to your needs.



Ion Chromatography (IC)

Training: Ion Chromatography theory and troubleshooting course

Course objective:

The courses are designed to help users who are new to the technique and instrumentation of Ion Chromatography or for those who want to enhance their theoretical understanding of Ion Chromatography and wish to carry out frontline maintenance.

The course material includes:

- Basic Ion Chromatography theory
- System functions
- Frontline hardware maintenance
- Column care
- Developing troubleshooting skills

Courses are grouped to maximize the best utilization for the operator on their particular product line.



Ion Chromatography (IC)

Training: HPAEC-PAD theory and troubleshooting course

Course objective:

The courses are designed to help users who are new to the technique and instrumentation of Ion Chromatography or for those who want to enhance their theoretical understanding of Ion Chromatography with electrochemical detector and wish to carry out frontline maintenance.

The course material includes:

- Fundamentals of electrochemical detection
- System functions
- Frontline hardware maintenance
- CarboPac column care
- Developing troubleshooting skills

Courses are grouped to maximize the best utilization for the operator on their particular product line.



Ion Chromatography (IC)

Training: Ion Chromatography – New operator course

Course objective:

This course has been developed for Ion chromatography (IC) new operators. The aim of this course is to give new IC users the basics and knowledge to perform routine ion chromatography analysis and system maintenance. The course is developed to ensure new IC operators have useful understanding of IC instrumentation and covers general system set up and troubleshooting.

The training course will cover:

- Ion chromatography fundamentals
 - Theory and principles of ion chromatography
 - Key components of an ion chromatography system
 - Different modes of detection (conductivity, electrochemical, and optical)
- Operating your IC system
 - Best practices for eluent preparation
 - Priming your system
 - Creating instrument methods and sequences
 - Shutdown procedures
- Basic user maintenance
 - Eluent generation cartridge installation and care
 - Suppressor installation and care
 - Column installation and care
 - Pump maintenance
 - Electrochemical cell care
 - Troubleshooting your system
 - Software tools to help monitor system and consumable performance
- Ion Chromatography advanced technologies
 - Eluent generation (RFIC) vs manual eluent preparation
 - Sample preparation (offline and inline filtration, and auto-dilution)

This course will be run at set dates throughout the year as **remote** webinar training.



Ion Chromatography (IC)

Training: IC method development

Course objective:

- Increase of actual skills for method development
- Discussions about separation and detection techniques
- Making a roadmap of method development
- Use of “Virtual Column”
- Discussions of Examples which can be used in own environment

Who should attend?

You should have a basic knowledge of Ion Chromatography.

This course is offered at **customer site only**.



Ion Chromatography (IC)

Training: Carbohydrates method development

Course objective:

- Understand and explain the workflow for carbohydrates analysis
- Identify the key parameters that affect carbohydrates detection
- Understand best practices for carbohydrates sample preparation
- Increase overall skills in method development
- Discussions about separation and detection techniques
- Making a roadmap of method development
- Use of “Virtual Column”
- Discussions of Examples which can be used in own environment

Who should attend?

You should have a basic knowledge of Ion Chromatography.

This course is offered at **customer site only**.



Liquid Chromatography (LC)

For experienced and new users to our Liquid Chromatography instruments and detectors, we offer both practical and theoretical training courses taught by experienced and certified instructors. Course sizes are always kept to a minimum to ensure each participant has access to instruments during practical training, as well as time to address their specific topics of interest.

Each training module can be delivered via one of our three training pillars so that you can chose the most suitable training method for you.



At Thermo Scientific Demo Centre training is delivered as two consecutive full days.



Remote webinar training will be delivered as two 3 hour sessions on consecutive days. Maintenance and troubleshooting course will be remote only and will be one 3 hour session. Remote training and support can be tailored to customer needs, including Q&A session for more experienced users, revision of existing data, or any other bespoke setup.



All training options can be supplemented by additional on site training tailored to your needs.



HPLC systems

Training: Theory and troubleshooting course for UltiMate 3000 HPLC

Course outline:

- A basic introduction to HPLC.
- Understanding of the practical aspects of the instrument.
- Practical tips to improve system performance.
- Information regarding useful operation parameters.
- An overall familiarization of the UltiMate 3000 HPLC instrument.
- Effectively detecting, troubleshooting and rectifying common issues.
- Performing instrument maintenance.
- Carrying out relevant diagnostic tests.
- Experience from hands-on laboratory exercises.
- Replacing common HPLC parts.

Who should attend?

This course has been designed for new users or potential users of the UltiMate 3000 HPLC and UltiMate 3000 RSLC instruments and for those who wish to carry out frontline maintenance.

This course is offered at **customer site only**.



HPLC systems

Training: Theory and troubleshooting course for VANQUISH LC

Course outline:

- A basic introduction to HPLC.
- Understanding of the practical aspects of the instrument.
- Practical tips to improve system performance.
- Information regarding useful operation parameters.
- An overall familiarization of the Thermo Scientific™ VANQUISH™ and VANQUISH Flex LC instruments.
- Effectively detecting, troubleshooting and rectifying common issues.
- Performing instrument maintenance.
- Carrying out relevant diagnostic tests.
- Experience from hands-on laboratory exercises.
- Replacing common HPLC parts.

Who should attend?

This course has been designed for new users or potential users of the VANQUISH and VANQUISH Flex LC instruments and for those who wish to carry out frontline maintenance. This course can be offered on demand.



HPLC/UHPLC

Training: HPLC/UHPLC – New operator course

Course objective:

This course has been designed for new users or potential users of the UltiMate 3000 HPLC, UltiMate 3000 RSLC, VANQUISH Flex, VANQUISH Horizon and VANQUISH Core HPLC systems.

The training course will cover:

- A basic introduction to HPLC
 - Fluid mechanics
 - HPLC theory
 - Method transfer
- Understanding of the practical aspects of the instrument
 - General setup of HPLC systems
 - Familiarization with the UltiMate 3000 and VANQUISH UHPLC system
 - Instrument control
 - Practical tips to improve system performance
- Maintenance and troubleshooting
 - Effectively detecting, troubleshooting and rectifying common issues
 - Performing instrument maintenance
 - Carrying out relevant diagnostic tests
 - Experience from hands-on laboratory exercises
 - Replacing common HPLC parts

This course will be run at set dates throughout the year as **remote webinar training** (two 3 hour sessions on consecutive days).



HPLC/UHPLC

Training: HPLC troubleshooting and maintenance

Course objective:

This course is suitable as an introduction to troubleshooting and maintenance of your HPLC/UHPLC.
Remote course only.

The training course will cover:

- Maintenance
 - Pumps
 - Autosamplers
 - Detectors
- Troubleshooting
 - Baseline problems
 - Peak shape problems
 - Retention time drift
 - Peak area irreproducibility
- Day-to-day running of the instrument

This course will be offered as a one 3 hour **remote webinar training** only.



HPLC/UHPLC

Training: Charged Aerosol Detector

Course objective:

Suitable as a refresher for the more experienced chemist or as an invaluable introduction to the VANQUISH HPLC instrument charged aerosol detector (CAD). This course provides an insight into CAD principles and practice.

The training course will cover:

- HPLC/UHPLC
- Introduction to the charged aerosol detector
- What is CAD?
- How does the work!
- Theory of operation
- How to use the CAD successfully
- Applications and choice of column chemistry
- Tips, tricks, troubleshooting and maintenance
- Questions and discussions of live issues

This course will be offered as a one 3 hour **remote webinar training** and at customer site upon request only.



HPLC/UHPLC

Training: ISQ EC/EM operator course

Course objective:

The aim of this training course is to familiarize the new Thermo Scientific™ ISQ™ EC/EM Single Quadrupole MS user with instrument operation including electrospray ionization, quadrupole principles, compound tuning, instrument calibration, data collection, maintenance and general functionality of the Chromeleon CDS software package.

The training course will cover:

- HPLC/UHPLC

The course material includes:

- ISQ EC/EM MS instrument hardware components
- Maintenance
- Tuning and mass calibration
- Compound optimization and method development
- Quantitative SIM analysis by electrospray Day-to-day running of the instrument

This course will be offered as a one 3 hour **remote webinar training** and at customer site upon request only.



Trace elemental analysis

Optimize your processes. From AAS to ICP-MS, our experience and intrinsic knowledge of the market will help you expedite applications and streamline your process for maximum efficiency and productivity. Whether it's environmental, petrochemical or clinical, our experienced instructors will prepare you to operate your instrument and software with ease. Each training module can be delivered via one of our three training pillars so that you can choose the most suitable training method for your company.



At our Demo Centre training is delivered as two consecutive full days for iCAP RQ operations courses and 1 day for the ICP-OES operations course.



Remote webinar training will be delivered as either one or two 3 hour sessions on consecutive days. Remote training and support can be tailored to customer needs, including Q&A session for more experienced users, revision of existing data, or any other bespoke setup.



All training options can be supplemented by additional on site training tailored to your needs.



Online training options allow users to learn at their own pace with easy to follow training modules.



Trace elemental analysis – ICP-OES

Training: ICP-OES operations

Course objective:

The aim of this is to improve the theoretical knowledge and practical skills of the ICP-OES user. The course will cover atomic spectroscopy theory, plasma related topics, instrument hardware, tuning and method set-up, functionalities of the software package, basic maintenance and troubleshooting.

The course material includes:

- Atomic spectroscopy theory
- Quantitative analysis
- Identifying and overcoming interferences in ICP
- Instrument optimisation
- Instrument hardware, maintenance and troubleshooting
- Getting the most out of Thermo Scientific™ Qtegra™ Intelligent Scientific Data Solution™ (ISDS) software

This course is will be run at set dates throughout the year as **remote webinar training** and at **our Demo Centre**. **Customer site training** is available upon request.



Trace elemental analysis – ICP-OES

Training: ICP-OES instrument hardware maintenance and troubleshooting

Course objective:

This course is designed for the ICP-OES Operator and covers all the essential topics related to instrument maintenance and troubleshooting. This remote webinar course covers best practice in keeping your instrument in best condition and getting the most out of your ICP-OES system.

The course material includes:

- Hardware overview
- Sample preparation best practice
- Routine maintenance
- Daily checks
- Weekly cleaning
- Troubleshooting issues
- Investigating data

This course is available on demand as **remote webinar training** only.



Trace elemental analysis – ICP-MS

Training: ICP-MS series iCAP Q/ RQ /RQplus/ TQe/ TQ operations

Course objective:

This course covers the fundamentals of the Thermo Scientific™ iCAP Q™ ICP-MS and Thermo Scientific™ iCAP RQ™ ICP-MS instrument operation and maintenance with a mixture of lectures and practical sessions. Topics include atomic spectroscopy theory, plasma description, hardware, tuning and method setup, functionalities of the Qtegra ISDS software package, basic maintenance and troubleshooting.

The course material includes:

- Single quadrupole ICP-MS fundamentals
- Instrument optimisation
- Quantitative and qualitative analysis
- Identifying and overcoming interferences in SQ-ICP-MS
- Instrument hardware, maintenance and troubleshooting
- Getting the most out of Qtegra ISDS software

This course will be run at set dates throughout the year as **remote webinar training** and at **our Demo Center**. **Customer site training** is available upon request.



Trace elemental analysis – ICP-MS

Training: ICP-MS instrument hardware maintenance and troubleshooting

Course objective:

This course is designed for the ICP-MS operator and covers all the essential topics related to instrument maintenance and troubleshooting. This remote webinar course covers best practice in keeping your instrument in best condition and getting the most out of your ICP-MS system.

The course material includes:

- Hardware overview
- Sample preparation best practice
- Routine maintenance
- Daily checks
- Weekly cleaning
- Troubleshooting issues
- Investigating data

This course is available on demand as **remote webinar training** only.



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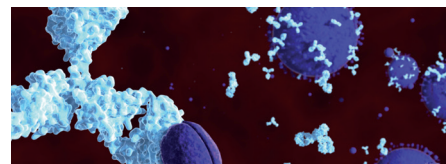
Information systems



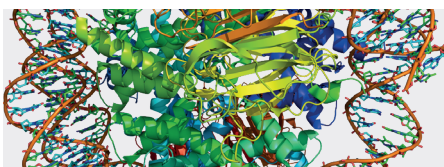
Water analysis



Biopharmaceutical



Proteomics



Material sciences



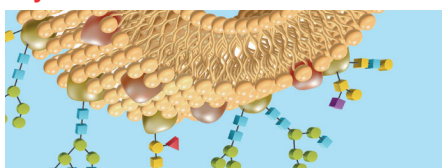
Chemical



Environmental



Glycomics



Pharmaceutical



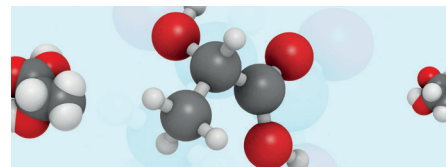
Food and beverage solutions



Geosciences



Metabolomics



Clinical research and forensics



How to register

For further information or to register on any of the courses listed, please use the following:

Email:	training.cmd.eu@thermofisher.com	Thermo Fisher Scientific
Phone:	+ 31(0) 765 795 555	Takkebijsters 1
Fax:	+ 31(0) 765 810 961	4817BL Breda
Web:	thermofisher.com/eustraining	The Netherlands

Cancellation policy:

- We reserve the right to cancel any course, 30 calendar days prior to the scheduled start date, due to insufficient enrollment
- We reserve the right to change the venue of the course, 30 calendar days prior to the scheduled start date
- In the event of a venue change, you will be notified by a Thermo Fisher Scientific representative
- Thermo Fisher Scientific will not be responsible for expenses incurred (for example, non-refundable airline reservations) if the course is cancelled or moved 30 calendar days prior to the scheduled start date
- Attendee substitutions may be made at any time upon notification of the Training Institute Co-ordinator
- Enrollment in your desired training course(s) is not guaranteed until receipt of the registration documents and confirmed method of payment

Refund policy:

- 100% refund for cancellations received 15+ business days prior to course date
- 50% refund for cancellations received 10–15 business days prior to course date
- No refund for cancellations received fewer than 10 business days prior to course date
- No refund for no-shows

 Learn more at [thermofisher.com](https://www.thermofisher.com)

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