ThermoFisher SCIENTIFIC

Thermo Fisher Scientific training courses

The key to your laboratory's success

training programme

Denmark, Finland, Iceland, Norway, Sweden

thermo scientific

Invest in yourself

Training options

To help you achieve your analytical needs we at Thermo Fisher Scientific have put together a range of training options. The options allow for flexibility in terms of the experience of the user with the instrumentation and software as well as requirements of the location.

Customer site – Customer site training is carried out by our applications specialists at your lab, this can be done immediately after a new installation or any time after. The course generally covers theory and practical operation and maintenance of the instrument but with the benefit of the course being able to be tailored to your specific method requirements.

Remote training – The remote webinar sessions are conducted over Microsoft TEAMS or virtual computers by our applications specialists. The sessions for instruments cover theory and practical aspects needed to operate and maintain the systems with the ability to ask method specific questions to the applications specialist. Software based remote webinars utilise virtual computers to enable users to follow and complete tutorials themselves.

e-Learning – Learn at your own pace via online modules that introduce all aspects of the operation and maintenance of the system. Each module covers theory and practical information with the end goal of enabling users to run samples and maintain the system efficiently.

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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 run at dates organized 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 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

Training: 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 **remotely** or at a **customer site**.

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.

GC and GC-MS training courses

For experienced and new users to GC and GCMS 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 chose the most suitable training method for you.

Remote webinar training will be delivered as one, two or three 3 hour sessions on consecutive days.

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

Chromatography – GC

Training: GC fundamentals

Course objective:

For the less experienced chromatographer or those wishing to update their skills, this course covers the fundamentally important concept in modern GC analysis and explores a logical approach to troubleshooting. This course is vendor neutral so suits all GC users.

The course material includes:

- GC theory
- Sample preparation protocols
  - Principles
  - Matrix elimination
  - Solvent considerations
- Sample introduction
  - Operating principles
  - Typical operating conditions
- Optimisation
- Split/splitless
- Columns and temperature programming
  - Choosing the right phase
  - Column geometries
  - Temperature effect
  - Isothermal vs gradient operation
- Detectors
  - Choosing the right detector
  - Operating principles and optimisation
- Approaches to logical troubleshooting
  - System overview
  - System maintenance records
  - Symptom / causes / diagnosis and solution
- Column installation
  - Installation and conditioning of a capillary column
  - Run check out sample and record peak retention
  - Column troubleshooting
- Inlet maintenance
- Detector maintenance

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

Chromatography – GC

Training: Trace 1600 Series GC operations

Course objective:

The aim of this course is to familiarize the Thermo Scientific™ Trace™ 1600 Series GC instrument user with basic instrument operation including gas chromatography theory and optimization, routine maintenance and data acquisition. This course includes software training on Chromeleon CDS software features specific to GC but for training on general Chromeleon CDS software use and reporting, please see our Chromeleon CDS software course selection.

The training course will cover:

- Trace 1600 GC instrument series
  - General overview/GC theory
  - Oven
  - Split/Splitless Injector (SSL) and PTV
  - FID detector and other detectors
- Autosampler overview
  - Thermo Scientific™ AS/AI 1610™ Series autosampler
  - Thermo Scientific™ TriPlus™ autosampler
  - Using the autosampler – programming the injection parameters
- Gas connections
  - Function of specific gases used
  - Carrier gas options
  - Gas filters
- Setting up your GC
  - Column installation
  - Detector configuration
- SSL – principle of operation
  - Injector design
  - Choice of Liner
  - Modes of operation
- FID – principle of operation
  - Detector design
  - Gas flows and make-up gas
- Chromeleon CDS software for Trace 1600 GC instrument series
  - GC configuration
  - Trace 1600 GC instrument series and the Chromeleon CDS software console
  - Instrument method setup
- GC Troubleshooting
  - General approach to identifying, fixing and preventing system faults

This course will be run at set dates throughout the year as **remote** webinar training (1 x 3 hour session). **On-site training** and TraceFinder software training are available upon request.

Chromatography – GC-MS

Training: ISQ 7610 GC-MS operation

Course objective:

The aim of this 2 day training course is to familiarize the user with basic instrument operation of the Thermo Scientific™ ISQ™ instrument series Single Quadrupole MS System, including gas chromatography theory, optimization for mass spectrometry, maintenance, tuning and data acquisition. This course includes software training on Chromeleon CDS software features specific to GC-MS but for training on general Chromeleon CDS software use and reporting, please see our Chromeleon CDS software course selection.

The training course will cover:

- GC and MS theory Trace 1600 GC instrument series – general overview
- Autosampler overview
  - AS/AI 1610 Series autosampler,
  - TriPlus autosampler,
  - Triplus 500 autosampler
  - Using the autosampler – programming the injection parameters
- SSL/PTV – principle of operation
  - Injector design
  - Choice of Liner
  - Modes of operation
- MS – principle of operation
  - ISQ 7610 GC-MS instrument dashboard
  - Tuning
- GC MS operator maintenance
  - Septa replacement
  - Liner replacement
  - Syringe replacement
  - Column installation
  - Cleaning the ion source
- Chromeleon CDS software for the ISQ 7610 GC-MS instrument
  - GC configuration
  - Instrument method setup
  - GCMS processing method setup
  - MS Library searching
- GC MS troubleshooting
  - General approach to identifying, fixing and preventing system faults

This course will be run at set dates throughout the year as **remote** webinar training (2 x 3 hour sessions). **On-site** training and TraceFinder software training are available upon request.

Chromatography – GC-MS

Training: TSQ 9610 GC-MS/MS operations

Course objective:

The aim of this 2 day training course is to familiarize the user with basic instrument operation of the TSQ 9610 Triple quadrupole GC-MS/MS instrument including gas chromatography theory, optimization for mass spectrometry, maintenance, tuning, automated SRM development and data acquisition. This course includes software training on Chromeleon CDS software features specific to GC-MS/MS but for training on general Chromeleon CDS software use and reporting, please see our Chromeleon CDS software course selection.

The training course will cover:

- GC and MS/MS theory Trace 1600 GC instrument series – general overview
- Autosampler overview
  - AS/AI 1610 Series autosampler
  - TriPlus autosampler
  - Triplus 500 autosampler
  - Using the autosampler – programming the injection parameters
- SSL/PTV – principle of operation
  - Injector design
  - Choice of liner
  - Modes of operation
- MS/MS – principle of operation
  - TSQ 9610 GC-MS instrument dashboard
  - Tuning
- GC MS/MS operator maintenance
  - Septa replacement
  - Liner replacement
  - Syringe replacement
  - Column installation
  - Cleaning the ion source
- Chromeleon CDS software for the TSQ 9610 GC-MS instrument
  - GC configuration
  - Instrument method setup
  - GCMS/MS processing method setup
- GC MS/MS troubleshooting
  - General approach to identifying, fixing and preventing system faults
- AutoSRM

This course will be run at set dates throughout the year as **remote** webinar training (2 x 3 hour sessions). **Customer site** training and TraceFinder software training are available upon request.

Chromatography – Orbitrap GC-HRMS

Training: GC-HRMS operations

Course objective:

This course provides comprehensive training for new and existing Orbitrap technology GC users. At the end of the course trainees will be ready to harness the power of high resolution Orbitrap technology GC in their own laboratory.

The course material includes:

- GC-HRMS theory
  - High resolution and accurate mass background
  - Inside the Orbitrap technology GCMS
- Everyday Orbitrap technology GC operation
  - Setup and maintenance
  - Tuning (EI) and calibration
  - System performance monitoring
- EI Acquisition modes and method setup
  - Full scan
  - SIM
  - Method development
- Chemical Ionisation (PCI/NCI)
  - CI theory and tuning
  - PCI/NCI full scan
  - PCI for molecular ion confirmation
  - PCI MS/MS workflows*
- High resolution workflows*
  - Database and library building*
  - Structure elucidation*
  - Qualitative analysis*
  - Quantitative workflows*
  - Deconvolution*
  - Advanced data insights and statistical analysis*

*Training will be tailored to attendees' workflows, instrumentation and software. GC-HRMS specific software training will provided for one or more of the following Thermo Scientific software suites:

- Xcalibur
- Freestyle
- Chromeleon CDS
- TraceFinder
- Compound Discoverer

This course will be run at set dates throughout the year via **remote** webinar training (3 x 3 hour sessions on consecutive days). **Customer site** training is available on request.

Chromeleon CDS software

For new and experienced users to Chromeleon 7 CDS software, we offer remote webinar training classes. The courses are taught by experienced and certified instructors. Utilizing the latest technology, the full day 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.

Remote webinar training will be delivered in a single 3-hour session.

Chromeleon CDS software remote training

Training: Chromeleon CDS – essentials

Course objective:

This course is aimed at new users and users requiring a refresher course. It covers the essentials of the Chromeleon 7 CDS software (depending on your requirements) allowing you to go from sample to result. This is an instructor led training course, where you will dial into the video call and follow along with the instructor, giving you the option to ask any questions.

The course material includes:

- Creating instrument methods
- Sequence creation
- Instrument control
- Processing your data
- Reporting your results
- Importing and exporting your data

This course is run on demand as **remote** webinar training.

Chromeleon CDS software full training course

Training: Introduction to Chromeleon 7 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
- Setting up analysis
- Executing an eWorkflow
- Navigating in the Chromatography Studio
- Data processing
- Manual integration of peaks
- Report designer
- Import and export of data

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

Chromeleon CDS software full training course

Training: Next steps in Chromeleon 7 CDS – level 2

Course objective:

This course has been designed for chromatographers who have joined the Chromeleon CDS software 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 cariables
- Definining automated system suitability and intelligent run control actions
- Calibration principle
- Report designer
- Charts and queries
- Creating an eWorkflow

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

Chromeleon CDS software full training course

Training: Chromeleon 7 CDS for mass spectrometry

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.

Course objectives:

- 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 at set dates throughout the year as **remote** webinar training.

Chromeleon CDS software full training course

Training: Chromeleon 7 CDS – administration

This course has been designed for lab managers who wish to utilize the user management and compliance features of Chromeleon CDS software. This is an instructor led training course, where you will dial into the video call and follow along with the instructor, giving you the option to ask any questions.

Course objectives:

- License management
- User management
- How to setup user accounts for users in your lab
- Learn about user roles and access control
- Manage the Chromeleon CDS software global policies

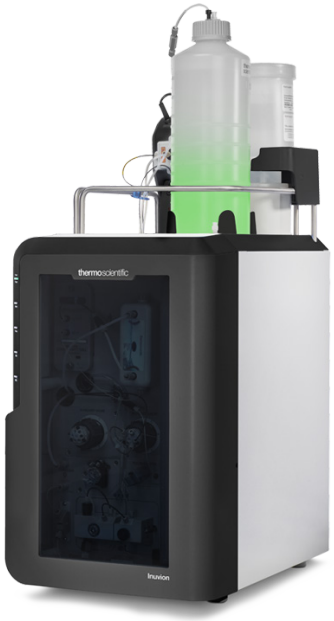
This course will be run on demand as **remote** training.

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 two training pillars so that you can chose the most suitable training method for you.

Remote webinar training will be delivered as two 3 hour sessions on consecutive days.

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



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 (Two 3-hour sessions on consecutive days)**.** **Customer site** training is available on request.

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 two training pillars so that you can chose the most suitable training method for you.

Remote webinar training will be delivered as single or multiple 3 hour sessions on consecutive days.

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

HPLC Systems

Training: HPLC/UHPLC – new operator course

Course objective:

This course has been designed for new users or potential users of the Thermo Scientific™ UltiMate 3000™ HPLC, UltiMate 3000 RSLC, Thermo Scientific™ VANQUISH™ Flex UHPLC, VANQUISH Horizon UHPLC and VANQUISH Core HPLC instruments.

The training course will cover:

- Liquid Chromatography Overview and Introduction
- 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 HPLC and VANQUISH UHPLC instruments
  - 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 a single day)**.** Training at **customer site** is available upon request.

HPLC/UHPLC

Training: HPLC maintenance and troubleshooting

Course objective:

This course is suitable as an introduction to troubleshooting and maintenance of your HPLC/UHPLC. Note: content is already trained in the HPLC/UHPLC New Operator course.

The training course will cover:

HPLC/UHPLC

- 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 run at set dates throughout the year as **remote** webinar training (1 x 3 hour session).

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 run at set dates throughout the year as **remote** webinar training (1 x 3 hour session). **Customer site** training is available upon request.

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

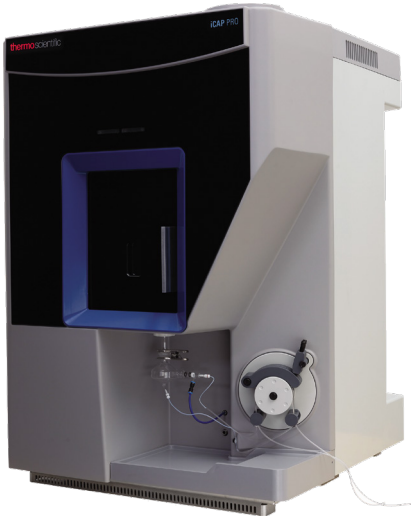
This course will be offered as a 1 x 3 hour **remote** webinar training. **Customer site** training is available upon request.

Trace elemental analysis

Optimize Your Processes. From AAS to ICP, 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 two training pillars so that you can chose the most suitable training method for your company.

Remote webinar training will be delivered as two 3 hour sessions on consecutive days.

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



Trace elemental analysis – Atomic absorption spectroscopy (AAS)

Training: Flame AAS operations

Course objective:

This course is designed for the AAS Operator and covers all the essential topics related to flame optimization, method development and efficient operation of the instrument.

The course material includes:

- Absorption and emission theory
- Hardware: set up, use and optimization
- Correction system for non-specific absorptions
- Influence of experimental parameters
- Absorption and emission analysis
- Non-specific absorption and chemical interferences
- Maintenance
- Sample solubilization
- Quality control tests

This course is available on demand as **remote** webinar training or **customer site** training.

Trace elemental analysis – Atomic absorption spectroscopy (AAS)

Training: Furnace AAS operations

Course objective:

This course is designed for the AAS operator and covers all the essential topics related to optimization of a furnace AAS system, method development and efficient operation of the instrument.

The course material includes:

- Theory of absorption
- Development of an analytical method
- Hardware: set up, use and optimization
- Non-specific absorption and matrix modifiers
- Correction system for non-specific absorptions
- Maintenance
- Sample solubilization
- Influence of experimental parameters
- Quality control tests

This course is available on demand as **remote** webinar or **customer site** training.

Trace elemental analysis – ICP-OES

Training: iCAP PRO ICP-OES operations

Course objective:

The aim of this is to improve the theoretical knowledge and practical skills of the ICP-OES instrument 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
- Instrument optimisation
- Quantitative analysis
- Identifying and overcoming Interferences in ICP
- Instrument hardware, maintenance and troubleshooting
- Getting the most out of Thermo Scientific™ Qtegra™ Intelligent Scientific Data Solution™ (ISDS) software

This course will be run at set dates throughout the year as a **remote training**. **Customer site** training is available on demand.

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 instrument.

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: iCAP MSX and iCAP RQplus Operations

Course objective:

This course covers the fundamentals of theThermo Scientific™ iCAP MSX™ and Thermo Scientific™ iCAP RQplus™ 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 is will be run on demand as **remote** webinar training and at set dates throughout the year. **Customer site** training is available on demand.

Trace elemental analysis – ICP-MS

Training: iCAP MSX ICP-MS and iCAP RQ ICP-MS advanced operations

Course objective:

This course is designed for experienced ICP-MS users or those that have completed the iCAP MSX and iCAP RQ ICP-MS instrument operation training course. This course can be tailored to suit the user and may include:

- Semi quantitative analysis
- Isotope ratio and deadtime correction determination
- Correcting for doubly charged interferences
- Use of sprint valves and autodilution accessories
- Argon gas dilution
- Nanoparticle analysis

This course is available on demand as **remote** webinar training or at **Customer site**.

Trace elemental analysis – ICP-MS

Training: iCAP TQ operations

Course objective:

This course covers the fundamentals of the Thermo Scientific™ iCAP MTX™ and hermo Scientific™iCAP TQ™ 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 Qtegra ISDS software package, basic maintenance and troubleshooting.

The course material includes:

- Triple quadrupole ICP-MS fundamentals
- Interferences and solutions
- Using reactive and collisional gases
- Flatapole technology (QCell)
- ICP-MS analysis and method development
- Qualification and performances report
- Calibration
- Data management and processing
- Multi elements and multi-modes analysis
- Maintenance

This course is available on demand as **remote** training or **customer site** training.

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** training only.

Discrete industrial analyzers (DIA)

Improve your productivity. Our discrete nutrient analyzers will offer a complete solution to rapid, random access sample analysis with efficient dip and sip sample and reagent consumption. Our experts in environmental, industrial, brewing and food and beverage analysis will provide you with 'hands on' instrument training using the intuitive software.

Remote training will be delivered on demand as two 3 hour sessions on consecutive days.

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

Discrete industrial analyzers (DIA)

Training: Thermo Scientific Gallery, Gallery Plus, Gallery Plus Beermaster Automated Photometric Analyzer systems

Course objective:

The aim of this training course is to familiarize the new user with the principles of discrete analysis and instrument components using the bench top analyzers. Then the emphasis shifts to the software features, routine operation, explanation of Test Flows and their effect on range and limits of detection, through to results reporting, database management and basic troubleshooting.

The course material includes:

- Hardware Components
- Software Features
- Routine operation
- Method Test Flow Explanation
- Result Reporting and Database Management
- Preventative Maintenance and Basic Troubleshooting

This course is available on demand as **remote** webinar training or **customer site** training.

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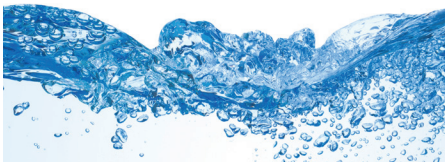
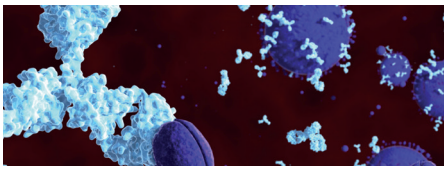
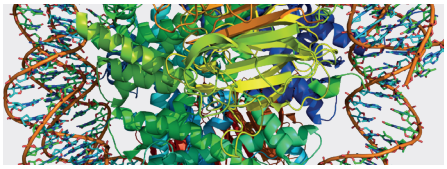
Scan the QR code or visit
thermofisher.com/my-community

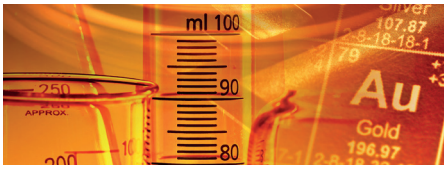
Information systems


Water analysis


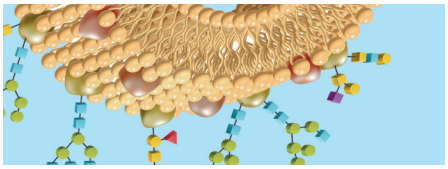
Biopharmaceutical


Proteomics


Material sciences


Chemical


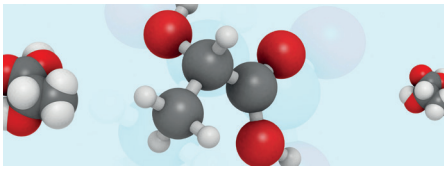
Environmental


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:

Sweden:
Thermo Fisher Scientific
Lindhagensgatan 76
112 18 Stockhom, Sweden

Phone: +46 619 44 00

Denmark:
Thermo Fisher Scientific
Gydevang 33
DK-3450 Allerød
Phone: +45 70236260
Fax: +45 70236263

Norway:
Thermo Fisher Scientific
Ullernchausséen 52
0379 Oslo
Phone: +47 22 06 10 00

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 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**