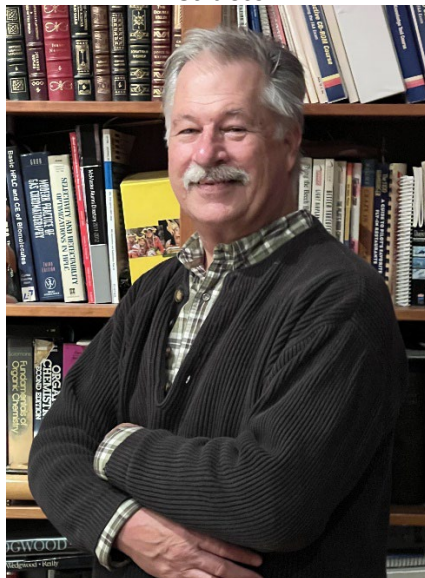


## TWO-DAY COURSE

# Advanced LC-MS/MS Method Development, Method Troubleshooting and Instrument Operation Needed in Developing Successful Methods for Molecular Identification and Quantitation

### Instructor



Robert D. Voyksner  
LCMS Limited

This course is designed for the chromatographer and /or mass spectrometrist who wants to be successful in developing methods, optimizing methods and solving problems using LC/MS. The course covers the atmospheric pressure ionization (API) techniques of electrospray, pneumatically assisted electrospray, atmospheric pressure chemical ionization (APCI) and atmospheric pressure photo ionization (APPI) using single quadrupole, triple quadrupole, time-of-flight and ion trap mass analyzers. Discussions of sample preparation and modes of chromatography will target method development and optimization for the analysis of “real-world” samples by LC/MS. The course highlights the following topics with respect to development and optimization of methods to achieve the best sensitivity, specificity, and sample throughput.

Specific topics that are covered include:

1. Understanding API ionization processes for electrospray, APCI and APPI, what affects the ionization process and how to maximize the ionization for compounds of interest.
2. Understanding the effects of LC columns (dimensions and particles size), flow rate, and mobile phases have upon the separation and LC/MS analysis.
3. Determining the type of ions that can form by API, how to interpret the MS and MS/MS spectra and approaches on how to perform qualitative analysis in LC-MS/MS and high-resolution MS/MS.
4. Understanding important issues that affect quantitative analytical results and how to optimize the method to achieve the best performance, reduce matrix suppression, and generate the best accuracy and precision.
5. Exploring what new techniques are available (e.g. direct analysis MS, chip method and MS instrumentation) that can improve the results one can obtain.
6. Open forum discussing attendees' specific problems they face in method development or analysis using LC-MS/MS.

This course focuses on method development and application for the analysis of both small and large molecules that are pharmaceutically, biomedically, clinically and environmentally relevant. All examples are taken from real world analyses, performed by Dr. Voyksner at LCMS Limited. The concepts presented in the course are reinforced through numerous problem sets the attendees will work on throughout the 2 day course.

The last part of the course is an open forum where each attendee is invited to share a current LC-MS/MS

issue they face. As a class we work through potential solutions and experiments to be performed to find a solution to the problem, applying the concepts taught in the class and Dr. Voyksner's 40 plus years of experience in LC-MS/MS. From past classes this has been the attendee's favorite part of the class.

**Prerequisite:** Working knowledge analytical chemistry, including experience with LC separations and/or mass spectrometry. This is a course for those using or plan to use LC-MS and LC-MS/MS, who want to learn how to develop a successful quantitative and qualitative LC-MS/MS assay and a deeper understanding the technique to achieve better sensitivity, specificity or throughput in their laboratory.