

## **Objectives of the ICPMS Course**

The course material includes:

1. Description and understanding of fundamental instrumental components and their working together as a system in the ICP-MS instrument.
2. Instrumental alternatives for specific analysis needs and objectives.
3. Understand ICP-MS instrument components for analysis optimization
4. Decomposition and acid chemistry for sample preparation and provide reference material that will aid the attendees in the future in their sample preparation efforts.
5. A Description of Clean and Ultra-Trace chemistry methods and sample preparation techniques specifically suited for ICP-MS and other ultra-trace analyses.
6. A Description on how new methods enable fully automated mass spectrometric analysis based on isotope dilution mass spectrometry and how these method provided quality control in quantitative analyses.
7. A Description of methods of rendering the sample and measuring MS system immune to the drifting of the mass spectrometer and to what is now considered interferences that render the MS analysis unusable.
8. A Description of new Elemental Speciated measurements that have been approved by EPA and are now available as EPA method 6800 - the first EPA approved reference method for speciation.
9. A Description of semiconductor applications of these sample preparation techniques that enable accurate 1 ppt and below measurements for 24 simultaneous elements in a fully automated manner.
10. Applications will cover Environmental, forensics and Semiconductor and general ultra-trace elemental and speciated analysis.

The course will be available for 1 graduate credit at Duquesne University for DU graduate students and listed as Course SPTP: 611-01 Mass Spectrometry