



CCDG Introductory Course in Liquid Chromatography on May 15 – 17, 2018.

Time Schedule

Activity	Slides	Estimated Time (Hrs)
• Day 1		
– Introductions		
– Language of Chromatography	38	0.50
– Operating Modes	103	2.5
– Column selection	82	2.0
– Equipment	73	2.0
• Day 2		
– Operating Issues	79	2.0
– Sample Preparation for LC	13	0.5
– Best Practices in HPLC	77	2.0
– Troubleshooting	92	2.5
• Day 3		
– HPLC Laboratory - Method Development for Energy Drinks		6

Learning Objectives

After completing CCDG Liquid Chromatography school, the learner will have good understanding of presented educational materials with his or her ability to complete assignments on each day as follows:

- **Day 1 (End)**

Following a discussion of chromatographic terms and equations, the students will be able to calculate traditional performance characteristics such as number of theoretical plates, resolution, and tailing factor. The presentation on Operating Modes will allow students to determine which mode they are using based on their column and stationary phase. Student will outline compounds structural differences per functional group, solubility and pKa, under which will be able to recognize most appropriate Liquid Chromatography mode, column type (its stationary phase & dimensions) and detections techniques that are most appropriate for separation of chemical entities of different polarities and properties in complex matrix.



- **Day 2 (End)**

Our discussion of Operating Principles, Troubleshooting, and Best Practices in HPLC give the students the ability to recognize the cause of common problem

Student will be able to:

1. Create plan for sample handling & preparation for LC analysis based on an assigned sample matrix type, analytes concentration and chromatographic method of choice.
2. List LC system operating problematic conditions that may occur during the analysis, which may impact on chromatography and results.
3. Exercise how to resolve problems based on each symptomatic condition with instrument and/or chromatographic separation and response.

- **Day 3 (Ongoing)**

Student will plan and prepare experiments by performing analysis with hands on instruments with goal in mind to resolve three analytes from one another and other components in complex matrix. Student will be challenged by getting the opportunity to achieve separation from complex matrix while exploring various columns of bonded phases, mobile phase pH tweak, ionization impact, matrix effect of suppression and calculate sample compounds of interest results using single point calibration curve.