

ANALYTICAL CHEMISTRY CERTIFICATE

Required Courses

Code	Title	Hours
CHEM 3310	Analytical Chemistry	2
CHEM 3360	Analytical Chemistry Laboratory	2
CHEM 4300	Instrumental Analysis	2
CHEM 4880	Advanced Laboratory III	2
Select Four (4) credit hours from the following course options*		4
CHEM 4310	Separation Methods	
CHEM 4350	Separation Methods Laboratory	
CHEM 4320	Electrochemistry	

*Chem 4310 and 4350 must be taken concurrently.

Total Hours 12

- Demonstrate an in-depth mastery of fundamental concepts, principles and hands-on laboratory methodology in the field of analytical chemistry.
- Develop skills and strategies for proper sampling, sample preparation and data analysis including accuracy, precision and error analysis.
- Understand theory and application of classical wet analytical chemistry methods in gravimetric and titrimetric analysis.
- Understand theory and application of instrumental methods focusing on spectroscopic methods, chemical separations, mass spectrometry, microscopy and electrochemistry.
- Design and conduct experimental procedures, analyze and interpret data, including models and statistical analysis to critically evaluate and interpret data.
- Communicate technical information clearly and accurately in written, oral and visual formats.
- Understand and apply proper experimental safety, ethical and professional analytical laboratory practices.