1. **Course**: Course CHEM 315 Analytical Chemistry: Introductory Instrumental Analysis

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<td>12:30-1:45</td>
<td>ENA103</td>
<td>Dr. J. Gailer</td>
<td>SB405</td>
<td><a href="mailto:jgailer@ucalgary.ca">jgailer@ucalgary.ca</a></td>
<td>TR: 2:00-3:00 pm</td>
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Course website or D2L course name: CHEM 315 L01 - (Winter 2019) - Analy Chem:Intro Instrument Analy
Departmental Office: Room SA 229, Tel: 403-220-5341, e-mail: uginfo@chem.ucalgary.ca

2. **Course Description: Lectures**: Principles and practice of instrumental measurements for the quantitative determination of substances. Spectroscopic analysis. Analytical separations; liquid-liquid extraction, solid phase extraction, chromatography. **Laboratory**: Quantitative analysis of organic and inorganic materials using simple instrumental techniques.


4. **Topics Covered* and Suggested Readings**:

   - **Chapter 4** Statistics, sections 4-7 and 4-8
   - **Chapter 5** Quality Assurance and Calibration Methods
   - **Chapter 28** Sample Preparation
   - **Chapter 18** Fundamentals of Spectrophotometry
   - **Chapter 20** Spectrophotometers
   - **Chapter 21** Atomic Spectrometry
   - **Chapter 22** Mass Spectrometry
   - **Chapter 23** Introduction to Analytical Separations
   - **Chapter 24** Gas Chromatography
   - **Chapter 25** High-Performance Liquid Chromatography
   - **Chapter 26** Chromatographic Methods and Capillary Electrophoresis
   - **Chapter 14** Fundamentals of Electrochemistry

* Given time constraints, not all indicated Topics may be covered.

**LABORATORY EXPERIMENTS**: (10 weeks, 40 hours total experiment time)
- Determination of Aluminum by EDTA titration (2 weeks)
- Spectrophotometric Analysis of Trace Iron
- Copper by Electrogravimetry
- Copper by Atomic Absorption Spectroscopy
- Cyclic Voltammetry of Ferricyanide
- Analgesics by High-Performance Liquid Chromatograph
- Chlorocarbons by Gas Chromatography
- Tartaric Acid in Wine by Ion Chromatography
- Fluoride by Ion-Selective Electrode