I. **Course Title**
   Analytical Chemistry Lab

II. **Course Prefix/Number**
   CHEM 332L

III. **Credit Hours**
   2

IV. **Prerequisites**
   CHEM 331

V. **Catalog Description**
   Chemistry 332L is designed to complement the lecture course (CHEM 332) by giving the student practical experience with many of the concepts through innovative laboratory experiments. One four-hour laboratory period every week.

VI. **Curricular Relationships**
   CHEM 332L is required for all BA and BS degrees in Chemistry

VII. **Student Learning Outcomes**
   • Students will be able to keep an effective lab notebook as a permanent record of work done in the laboratory.
   • Students will be able to communicate scientific results and significance in written form.
   • Students will demonstrate the proper use of both qualitative and quantitative glassware.
   • Students will be able to perform appropriate statistical calculations on data and interpret their significance.
   • Students will be able to safely and effectively operate much of the available analytical instrumentation including UV-Vis spectrophotometer, fluorescence spectrophotometer, atomic absorption spectrophotometer, gas chromatograph, and high-performance liquid chromatograph.

VIII. **Content Outline**
   • Analysis by UV-Vis Spectroscopy
   • Fluorometric Analysis
   • Analysis by Flame Atomic Absorption Spectroscopy
   • Analysis by Atomic Emission Spectroscopy
• Analysis by Furnace Atomic Absorption Spectroscopy
• Analysis by Gas Chromatography with Flame Ionization Detector
• Analysis by Gas Chromatography with Mass Spectrometer Detector
• Analysis by High-Performance Liquid Chromatography

IX. Course Procedures/Policies/Grading Scale
• Students are required to attend all laboratory sessions. Lab reports are collected and graded for each weekly experiment. A two week lab practical requires a formal paper.

• Normal grading is used for this course.
  Grading Scale: >90 = A; 80-89 = B; 70-79 = C; 60-69 = D; <60 = F

X. Required/Recommended Readings
An in-house text is used for the course.

XI. Issues Unique to this Course
• Co-Requisite: CHEM 332
• This course, because of limited equipment and experimental procedures, may require additional time and/or special scheduling.

XII. Additional Departmental Issues
None