I. **Course Title**
Analytical Chemistry Lab

II. **Course Prefix/Number**
CHEM 331L

III. **Credit Hours**
2

IV. **Prerequisites**
CHEM 132 and MATH 106 and MATH 107 or MATH 120

V. **Catalog Description**
Chemistry 331L is designed to complement the lecture course (CHEM 331) 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 331L 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 demonstrate proficiency in the gravimetric analysis of unknowns.
- Students will demonstrate proficiency in performing and data analysis of argentometric, EDTA, acid-base, iodometric, and redox titrations.
- Students will be able to efficiently prepare and standardize of a wide variety of solutions.

VIII. **Content Outline**
- Accuracy and Precision of Glassware
- Measurement Statistics
- Gravimetric Determination
- Argentometric Determination
- Titration of a weak base with a strong acid
- Titration of a weak acid with a strong base
- Ksp Determination
- EDTA Titration
- Redox Titration

**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 331
- This course, because of limited equipment and experimental procedures, may require additional time and/or special scheduling.

**XII. Additional Departmental Issues**

None