CHEMISTRY 3005
QUANTITATIVE ANALYSIS LABORATORY
FALL 2007

Course Name: Quantitative Analysis Laboratory

Time/Location: M 3:30-6:20 or Th 12:30-3:20 p.m.

Instructor: Stephen Bialkowski *Office* ML-359 *Phone*: 7-1907, email: Stephen.Bialkowski@usu

Teaching Assistant: Oluwatosin Dada *Office* W-006 email: Oluwatosin@cc.usu.edu

Office Hours: During the laboratory meeting, by appointment, or using electronic mail.

Text: *USU Department of Chemistry and Biochemistry Chemistry 3005 Laboratory Manual* is in the bookstore and on-line.

Materials: Bound laboratory notebook, safety goggles; laboratory coat highly recommended, pencil, pen, etc.

Course Content: This course consists of 8 laboratories. Laboratories include experiments in volumetric, gravimetric, and instrumental methods of chemical analysis. Instrumental methods include electrochemistry, emission and absorption spectrophotometry, and ion-exchange and gas chromatographic separations.

Learning Objectives:

- Comprehend the importance of stoichiometry, chemical equilibrium and kinetics in analysis.
- Understand laboratory and chemical safety
- Formulate concepts of validation of data and experimental design
- Comprehend concept of and perform chemical measurement calibration
- Apply and assess concepts of availability and evaluation of analytical standards and formulate standardization methodology
- Demonstrate knowledge of sampling methods for all states of matter
- Use statistical methods for evaluating and interpreting data
- Assess sources of error in chemical and instrumental analysis and account for errors in data analysis
- Recognize interferences in chemical and instrumental analysis
- Apply theory and operational principles of analytical instruments

Examinations: Course performance will be evaluated based on the accuracy of reported experimental results, laboratory notebook data entry and general quality, and in-class quizzes.

Grading: Each experiment has a maximum score of 100 points. Laboratory notebook checks will count 50 points each. The final quiz is 100 points**.**

Maximum Points	Task
800	8 Experiments
100	Laboratory notebook checks
100	Final quiz
1000	**Total Points**

The maximum letter grade ranges will be: A, 90-100%; B, 80-89%; C, 70-79%; D, 60-69%. The rages may be lowered but will not be raised. Plus (+) and minus (-) grade modifier will be used. The upper 1/3 of a letter grade % range will be assigned (+), the lower 1/3 will receive a (-) modifier.

Withdrawal Policy: This course will follow the University policy on withdrawals stated in the current Undergraduate Catalog. Drop dates are listed in the Schedule of Classes.

Missed Examination Policy: Students may be excused from a laboratory in cases of emergency. Documentation must be supplied to be excused. In cases of excused absence, grades will be assigned based on % of adjusted total score. For other absences, late assignments will be penalized 10% of the maximum score per meeting day to a maximum of 50%. No repetition of experiments is permitted once a result is submitted.

Attendance Policy: Attendance is mandatory for successful performance in this course. Attendance is monitored through laboratory notebook checks.

Student Disability Statement: Any student with a disability that requires accommodations must contact the Instructor. The disability must be documented by the Disability Resource Center. Course materials may be requested in alternative formats.

Laboratory Fee Statement: A laboratory fee is required for this course. Laboratory fees for this course are used for the purchase of equipment and supplies for the laboratory.

Assessment Statement: The value of a quantitative teaching laboratory is to learn laboratory procedures manifesting in accuracy. Laboratory learning objective performance is evaluated by comparing analytical results of analyzed unknowns to those reported in previous years.

Be sure to watch the on-line Chemistry 3005 laboratory manual at:

http://www.chem.usu.edu/~sbialkow/Classes/3005/index.htm