

CHE 340-001: Analytical Chemistry **Fall 2004**

Instructor: Dr. Heather Bullen

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Text: Quantitative Chemical Analysis, 6th ed. Daniel C. Harris

Class Times: 1:00-1:50 pm MW, SC 402

Prerequisite: CHE121L

Co requisite: CHE 340 L

Office Hours: I have an open door policy. Please stop by if you ever have questions, or contact me if you want to set up an appointment. My formal office hours are:
M, W: 2:00-3:00 pm; T: 9-10 am; F: 1-2 pm

Objectives: Obtain a sound understanding of the fundamental principles of analytical chemistry.

- 1) Learn the basic principles of statistic and error analysis and expand the understanding of chemical equilibria (acid-base and complexation)
- 2) Learn the basic principles of gravimetric, volumetric, electroanalytical, and spectrophotometric analysis
- 3) Gain an introduction to modern analytical instrumentation: learn the basic concepts of chromatographic separations and atomic spectroscopy

Attendance: Regular attendance is expected and tardiness is not tolerated.

Exams: There will be two exams (Friday 10/8, Friday 11/19) and a final exam (Wednesday 12/15 1-3 pm) during the semester. The final exam will be cumulative. **No** make up exams will be given. A student missing an exam must notify the instructor in advance. On the instructor's discretion, the student may use the final exam score to count for one exam. This policy only applies to one exam.

Homework: Homework problems will be handed out during the course. These problems are designed to help ensure your understanding of the material presented in the lecture and prepare you from the exams.

Quizzes: Short in-class quizzes will be given throughout the semester. These quizzes may be announced or unannounced to address students preparedness for lecture and the understanding of the course material. Make up quizzes will not be given and the lowest quiz score will be dropped.

Grading Scheme:

Exam 1	= 25%
Exam 2	= 25%
Final Exam	= 30%
Homework	= 15%
Quizzes	= 5%

Grading Scale: The letter grade for the course will be based on the final percentage scale

<u>Course Grade</u>	<u>Percentage</u>
A	90-100
B	80-89
C	70-79
D	60-69
F	0-59

Honor Code: The NKU Honor Code is in effect for this course. Failure to comply will result in a zero grade. <http://www.nku.edu/~deanstudents/HonorCode.htm>

Note: The syllabus is subject to change. Students are responsible for understanding all items on this syllabus. Any items not understood must be brought to the attention of the instructor within the first two weeks of class.

TENTATIVE COURSE OUTLINE

Topic	Chapter
Experimental Error and Statistics	0-4
Let the Titrations Begin/Chemical Equilibria and Activities	6-8
Acid Base Equilibria (Monoprotic/ Polyprotic)	10-12
Complexometric Titrations	13
Fundamentals of Electrochemistry	14
Electrodes and Potentiometry	15
Redox Titrations	16
Electroanalytical Techniques	17
Fundamentals of Spectrophotometry	18
Atomic Spectroscopy	21
Introduction to Analytical Separations	23
Gas Chromatography	24
High-Performance Liquid Chromatography	25