

Chem 274 – Spring 2012

Principles of Analytical Chemistry

Instructor: Professor John Head (Office: Bilger 241A - Email: johnh@hawaii.edu)

Textbook: "Quantitative Chemical Analysis", Daniel C Harris, 8th edition, Freeman (2010) and "Solutions Manual"

Ebook: www.whfreeman.com/qca8e

Prerequisites: Chem 162 or 181; Math 215 or Math 241 or Math 251A, or equivalent

Exams: Three 1 hour mid semester exams (20 pts each) and a 2 hour cumulative Final (40 pts). There will be no makeup exams so please note carefully the date for the exams on the next page. If you do miss an exam, email me as soon as possible (within 24 hrs of the time of the test) to explain why you missed the exam. Missing an exam due to illness will usually be an acceptable excuse as long as a valid Doctor's note is provided.

Homework: Practice problem sets will be suggested but will **not** be collected or graded. Obviously your performance in this class will be highly dependent on how much time you devote to studying the material. Most of the concepts covered in this class will be best understood by doing the practice problems.

Course Grade: Will be based on the scores you obtain on the exams (100 pts).

Learning Objectives

Develop an understanding of the physical principles of analytical chemistry.

Develop an appreciation for how error analysis and statistics determine the accuracy one can expect from experimental measurements.

Explore the role chemical equilibria play in performing chemical measurements.

Gain an overview of the different experimental techniques used in quantitative chemical analysis.

Course Schedule – Chem 274 – Spring 12

1. Review – measurements (Chapter 1)
2. Experimental Error (3)
3. Statistics (4, 5)

EXAM I - February 2

4. Chemical Equilibrium (6, 7)
5. Monoprotic Acid/Base Equilibria (8)

EXAM II - March 1

6. Polyprotic Acid/Base Equilibria (9)
7. Acid Base Titrations (10)
8. Complexometric Titrations (11)

EXAM III - April 5

9. Electrochemistry (13, 14)
10. Redox Titrations (15)
11. Spectroscopic Techniques (17, 18, 19)

FINAL (2 hours) - Tuesday May 8 9:45 - 11:45
