

Chem 274 – Spring 2017

Principles of Analytical Chemistry

Instructor: Prof. Tom Apple (Off: Bil 237A; E-mail: tapple@hawaii.edu, Ph: 956-8308)

Textbook: "Quantitative Chemical Analysis", Daniel C Harris, 9th edition, Freeman (2016) and "Solutions Manual"

Ebook: www.whfreeman.com/

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

Exams: Three 75 min mid semester exams (20 pts each) will be held during normal class times and there will be 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! 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 from the textbook will be posted on the laulima.hawaii.edu/portal but will **not** be collected or graded. Most of the concepts covered in this class will be best understood by doing these 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 17

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

EXAM I – February 14

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

EXAM II – March 14

6. Polyprotic Acid Base Titrations (9, 10)
7. Complexometric Titrations (11, 12)

EXAM III – April 11

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

FINAL (2 hours) [TBA]
