

# Chem 274 – Spring 2014

## Principles of Analytical Chemistry

**Instructor:** Professor John Head (Office: Bilger 236 – Email: [johnh@hawaii.edu](mailto:johnh@hawaii.edu))

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

**Ebook:** [www.whfreeman.com/qca8e](http://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).

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### 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 14

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

## **EXAM I - February 6**

4. Chemical Equilibrium (6, 7)
5. Monoprotic Acid/Base/Buffers (8, 9, 10)

## **EXAM II - March 6**

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

## **EXAM III - April 10**

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

**FINAL (2 hours) - Tuesday May 13 9:45 - 11:45**

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