

Chem 274 Summer 2019 (CRN 91065)

Syllabus for Principles of Analytical Chemistry

(Mon to Fri 10:30-11:45)

Instructor: Chester Dabalos (Office: Bilger 247B; Email: cdabalos@hawaii.edu)

Office Hours: 9-10:20 Mon to Fri

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

Requirements: scientific calculator and handy periodic table of elements

Exams: Three Exams (one exam per two major sections, see course schedule)

Final Exam (cumulative, may be used to replace lowest exam)

Online exercises: OWLv2 (C-engage); for due dates, see next page

Course Grade: 22.5% per exam; 10% exercises

Learning Objectives:

- Integrate principles from general chemistry (such as stoichiometry, unit analysis, and ICE tables) to solve problems involving determination of chemical analytes
- Appreciate the role of chemical equilibria during chemical analysis
- Gain an overview of various experimental techniques and how they are used in environmental, industrial and medical applications

Textbook: “Fundamentals of Analytical Chemistry” (9th edition or its equivalent) by Skoog and its “Solutions Manual”. This book is also available as an e-book from C-engage at a cheaper price. E-book is free when purchasing OWLv2.

Course Schedule:

Wk	Date	Day	Topics/Important Information
1	5/20	M	Syllabus, Math Review, Measurements: Chemical Concentrations and Stoichiometry Calculations (4)
	5/21	T	continuation; Experimental Error (5, 6)
	5/22	W	Statistics (7)
	5/23	R	Continuation
	5/24	F	Chemical Equilibrium Part I: Protic acids and bases (9); Exercise #1
2	5/27	M	Memorial Day
	5/28	T	Monoprotic Acid-Base Equilibria (14, 15, 16)
	5/29	W	continuation; Acid Base Titrations
	5/30	R	continuation; Buffers; Exercise #2
	5/31	F	EXAM_1
3	6/3	M	Chemical Equilibrium Part II: Solubility Product and Precipitometry (9)
	6/4	T	Gravimetric Analysis (12)
	6/5	W	EDTA Titrations (17); Exercise #3
	6/6	R	continuation
	6/7	F	Fundamentals of Electrochemistry (18, 19)
4	6/10	M	Redox Titrations (20)
	6/11	T	Kamehameha Day
	6/12	W	Continuation; Exercise #4
	6/13	R	EXAM_2
	6/14	F	Electrodes and Potentiometry (21)
5	6/17	M	continuation
	6/18	T	Fundamentals of Spectrophotometry (24)
	6/19	W	Continuation; Exercise #5
	6/20	R	Applications of Spectrophotometry (26, 27)
	6/21	F	Continuation; Exercise #6
6	6/24	M	EXAM_3
	6/25	T	Introduction to Analytical Separations (31)
	6/26	W	Calculations on Chromatography
	6/27	R	HPLC, GC (32, 33) Exercise #7
	6/28	F	FINAL EXAM