

Quantitative Chemical Analysis, CHEM 3415W– SPRING 2017

Required Text: *Quantitative Chemical Analysis, 8th Edition*; Daniel C. Harris;
W.H. Freeman and Company, New York

Useful Website: <http://bcs.whfreeman.com/qca8e>

Required Items:

1. Scientific calculator (Graphing calculators are NOT allowed on exams.)
2. (Two) locks for lab drawers
3. Dish detergent and paper towels
4. Small bound notebook for lab

Counseling

Undergraduate Chemistry Advisor:

Prof. Emilio Gallicchio, 3116N
egallicchio@brooklyn.cuny.edu

Chemistry Department

Office: 359 New Ingersoll; phone extension 5457

Webpage: <http://academic.brooklyn.cuny.edu/chem/index.htm>

Academic dishonesty is prohibited in the City University of New York.

Cheating, plagiarism, internet plagiarism and obtaining unfair advantages are violations of policies of academic integrity and are punishable by penalties, failing grades, suspension and expulsion.

For more information about CUNY policy on academic integrity see

<http://www.brooklyn.cuny.edu/bc/policies/pdt7CUNY%20PolicyAcademicIntegrity.pdf>

Student Disability Services

In order to receive disability-related academic accommodations students must first be registered with the Center for Student Disability Services. Students who have a documented disability or suspect they may have a disability are invited to set up an appointment with the Director of the Center for Student Disability Services, Ms. Valerie Stewart-Lovell at 718-951-5538. If you have already registered with the Center for Student Disability Services please provide your professor with the course accommodation form and discuss your specific accommodation with him/her.

Drop/Add Dates:

January 29	Last day to drop a course with 0% liability (100% refund)
February 5	Last day to add a course; Last day to drop a course with 25% liability.
February 12	Last day to drop a course with 50% liability.
February 19	Last day to drop a course without a grade of "W" Last day to drop a course with 75% liability.
February 20	Course withdrawal period begins. A grade of "W" is assigned to students who officially withdraw from a course.
April 19	Course withdrawal period ends. Last day to withdraw from a class with a grade of "W".

Grading:

Your final grade will be determined as follows:

35% 4 Lecture Exams (lowest dropped)

NO MAKEUPS ARE GIVEN FOR LECTURE EXAMS

35% Laboratory Reports

30% Final Exam

Lecture Exams: Topics to be announced

- **First Lecture Exam:** **February 23**
- **Second Lecture Exam:** **March 23**
- **Third Lecture Exam:** **April 27**
- **Fourth Lecture Exam:** **May 18**

Final Exam: Tuesday, May 23, 3:30-5:30 PM

Contact Information and Office Hours:

Dr. Mathias
359 New Ingersoll
Monday & Wednesday 2:00-3:00 PM
jmathias@brooklyn.cuny.edu
(PUT YOUR NAME AND CHEM 3415W IN THE SUBJECT LINE!)

Homework Assignments:

It is recommended that you do Exercises and Problems from your textbook; **solutions to exercises** and **answers to the problems** are found at the end of the text. These exercises and problems will serve as a guide to the type and level of difficulty of exam questions.

Homework is NOT collected; however, the investment of time you make in this area will be reflected in your mastery of the material and, hence, your final grade.

Chemistry 3415W: Lectures and Topics

	ASSIGNED READING	TOPICS
	Chapters 0-3	The Analytical Process; Measurement science; Analytical tools; Error Analysis
	Chapters 4-5	Statistics and Quality Assurance
	Chapter 6	Chemical equilibrium
February 23	Lecture Exam 1	
	Chapters 7	Chemical equilibrium and Activity
	Chapter 8-9	Monoprotic & Polyprotic Acid-Base Equilibria
	Chapters 10-11	Titrations
March 23	Lecture Exam II	
	Chapters 13-14	Electrochemistry & Electrodes
	Chapter 15	Redox Titrations
	Chapter 16	Electroanalytical Techniques
April 27	Lecture Exam III	
	Chapter 17-18	Fundamentals & Applications of Spectrophotometry
	Chapters 19	Spectrophotometers
	Chapter 20	Atomic Spectroscopy
	Chapter 21	Mass Spectrometry
	Chapters 22-25	Analytical Separations
May 18	Lecture Exam IV	

Chemistry 3415W: Laboratory

SAFETY GOGGLES MUST BE WORN IN THE LABORATORY AT ALL TIMES!

The goggles must be indirectly-vented to offer splash protection. If you violate the eye-protection policy, or any other safety policy, your instructor may remove you from the laboratory and/or affix at least a 10% penalty to your lab report grade.

You are required to keep a **Scientific notebook** in the laboratory. This must be a **BOUND** notebook; data is to be recorded in blue or black, non-erasable ink. All data is to be recorded **DIRECTLY** into the notebook, immediately after the measurement is made: **No scrap paper**.

Try to be neat when recording data; however, it is more important to record your data directly into the notebook than having it “picture perfect”. Mistakes should be crossed out with a single line; do not use white-out.

Altering or copying data outside of the laboratory represents academic dishonesty and will be dealt with as such.

Your instructor may inspect your notebook at any time in order to verify that these procedures are being followed.

Lab reports are due in lab one week after the conclusion of the experiment.

Meeting	Experiment	Exercise
PART I:		
1	Exp. 1	Check-in. Introduction to Analytical Measurements: Weighing, Calibration and Statistical Approach using Microsoft EXCEL
2,3	Exp. 2	Determination of Chloride by the Mohr Method
4,5	Exp. 3	Determination of Phosphoric Acid Level in Soft Drinks by Potentiometric Titration and Computer Data Analysis
6	Exp. 4	Determination of Zn in a Cold-Relief Lozenge Medication by EDTA Complexometric Titration
7	Exp. 5	Spectrometric Determination of Iron
8,9	Exp. 6	Determination of Iron in an Ore Sample by Oxidation-Reduction Titration
PART II:		
10	Exp. 7	Flame Photometry: Determination of Sodium and Potassium in an Unknown Sample
11	Exp. 8	Gas Chromatography: Analysis of a Mixture of Organic Compounds
12	Exp. 9	Cyclic Voltammetry: Dependence on the Concentration of an Analyte; Determination of the Concentration of an Iron Complex
13	Exp. 10	UV-VIS Spectroscopy: Determination of a Composition of a Two-Component Mixture
14	Check out.	No work permitted

