

Syllabus: CHEM 121 Quantitative Analysis – Fall 2017

Course Description:

UVM catalogue description: CHEM 121 Quantitative Analysis: "Theory and practice of volumetric and gravimetric analysis. Theoretical discussion of indicators, buffers, pH, etc. Introduction to data analysis, spectrophotometry, and chromatography. Prerequisite: CHEM 032 or CHEM 036 or CHEM 052."

Learning Goals:

- x To apply knowledge of chemical and physical principles to the solution of qualitative and quantitative chemical problems
- x To understand the interplay of observational data, hypotheses, and hypothesis-driven experimentation through application of the scientific method
- x To become proficient in chemical laboratory techniques and apply these techniques to practical and current problems th

How the course grade is determined:

Activity	Weight
Sapling problem sets	20%
Laboratory	20%
Exam 1	60%
Exam 2	
Exam 3	
Final exam	
TOTAL:	100%

- x Problem sets will be assigned via online Sapling Learning. These problems are assigned to provide you practice and to be sure you have mastered the material presented in the lectures and book.
- x See below for more information about grading of the laboratory assignments.
- x Exams:
 - o There will be 3 exams during the semester given during the evening recitation/review/exam period (see blackboard for the schedule).
 - o **The final exam is scheduled for the last day of exams, Friday 12/15/2017 from 10:30 am – 1:15 pm** in Lafayette L102.
 - o Your exam grade (60% of the total) will be the average of the top 3 exam scores. The lowest exam score will be excluded. For example, if you are comfortable with your first 3 exam scores, you may skip the final.

NOTE: You will receive an automatic F for the course if you do not have a passing grade in the laboratory. Laboratory passing grade is $\geq 60\%$ (120 of 200 points).

Laboratory:

Practical quantitative analysis is a skill that is acquired only via meticulous practice in the laboratory. The purpose of this course is not only to acquaint you with 2u5ito

Subject Matter to be Covered in CHEM 121:

- Topic (Chapters in Harris 9th Ed.)
- x Tools of the trade (0r5)
 - o Critical concepts of analytical chemistry
 - o Statistics
 - o Use of Excel
 - o Quality assurance and setting up an analytical method
 - x Chemical equilibria (6)
 - x Acids, bases, & buffers (8r10)
 - x Titrations (7, 11, 12, 16)
 - x Electrochemistry & redox titrations (14r15)
 - x Spectrophotometry & applications (18r20)