

Exam 1 Review CHEM 212

Topics covered in Unit 1:

Scientific method

Gravimetric analysis

Errors

Types of errors

Accuracy vs precision

Quantifying error

Propagation of error

Statistics

Use of statistics

Gaussian distribution shape and calculating area of a slice

Confidence interval

Student's T-test

F-test

Grubbs test

Calibration

Internal vs external calibration

General ideas about least squares fitting

Calibration curve

Standard addition

Internal standards

Calculating errors associated with calibration (S_x , S_y , S_m , S_b)

Quality assurance and Quality control

Method selection and validation

Things that **will** be on the exam:

- Some kind of multi-part unit conversion similar to the challenge problem, 3-20, or the dilution calculations for lab 2. Expect to propagate error.
- Some kind of critical review of a data set involving appropriate statistical analysis.
- Some kind of use of calibration to calculate the concentration of an unknown. Expect to calculate the error associated with the unknown given the equation.

Things to do to study:

- Review worksheets and homework problems
- Work old exams

Things you can use on the exam:

- Non programmable calculator
- Equation sheet (it is posted online, so you know what to expect)
- Your brain