

# Exp2 Grading Rubrics and Summary - Chem 222 Spring 2005

## Data Analysis

- 1 Didn't use slope to find  $\epsilon$
  - 2 Wrong mg Fe in tablet
  - 1 Wrong 95% CI for  $\epsilon$  (if  $\epsilon$  was computed correctly)
  - 2 No attempt to compute 95% CI for  $\epsilon$  (-1 if no  $\epsilon$ , either)
  - 1 Wrong  $d_i^2$  values in spreadsheet
  - 1 No  $[\text{Fe}^{2+}]$  in final unknown sol'n reported
  - 1 Wrong  $t_{\text{calc}}$  ← note that in  $\frac{|\bar{x} - \mu|}{S_x}$ , all 3 terms must have the same units!
  - 1 Plotted only 4 points on calibration curve
  - 1 Calibration curve x-axis with units of mL Fe
  - 2 No attempt to compute  $\epsilon$
  - 2 No error propagation to find  $S_x$
  - 1 Error in spreadsheet  $S_x$
  - 1 Incorrect error propagation
  - 1 wrong 95% CI for mg Fe in tablet (equivalent to wrong  $t_{\text{calc}}$ )
- as discussed in class, this is simply  $t S_{\epsilon}$   
where  $S_{\epsilon} = \frac{S_m}{1.00 \text{ cm}}$

## OVERALL SCORES

LOW 18  
MEAN 22.1  
HIGH 25

Most points lost because data analysis instructions weren't followed

## Exp 2 Results

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$\epsilon$ (M-1 cm-1)	95% CI in $\epsilon$	mg Fe	std err (mg Fe)	Score (out of 5)
11195	220	63.1	0.6	5
11435	258	67.3	0.7	5
11544	97	62.8	0.3	5
11806	73	65.0	0.2	5
11631	193	66.6	0.5	5
11285	224	64.9	0.6	5
10299	1646	61.9	4.9	4
11772	262	59.9	0.7	5
gross error				4
gross error				4

Generally good precision. While the nominal value of 65 mg Fe/tablet cannot be taken as absolute truth, it is noteworthy that the group with the best precision also had perfect agreement with the nominal value.