

CHEM 255  
Spring 2011  
Exam 1 Equation Sheet

$$\bar{x} = \frac{\sum_i x_i}{n}$$

$$s = \sqrt{\frac{\sum_i (x_i - \bar{x})^2}{n-1}}$$

$$t_{\text{calc}} = \frac{|\text{known value} - \bar{x}|}{s} \sqrt{n}$$

$$t = \frac{\bar{x}_1 - \bar{x}_2}{s_{\text{pooled}}} \sqrt{\frac{n_1 n_2}{n_1 + n_2}}$$

$$s_{\text{pooled}} = \sqrt{\frac{s_1^2(n_1 - 1) + s_2^2(n_2 - 1)}{n_1 + n_2 - 2}}$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$t_{\text{calc}} = \frac{\bar{d}}{s_d} \sqrt{n}$$

$$t_{\text{calc}} = \frac{|\bar{x}_1 - \bar{x}_2|}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$$

$$s_d = \sqrt{\frac{\sum (d_i - \bar{d})^2}{n-1}}$$

$$\text{deg of freedom} = \left\{ \frac{\left( \frac{s_1^2}{n_1} + \frac{s_2^2}{n_2} \right)^2}{\left( \frac{\left( \frac{s_1^2}{n_1} \right)^2}{n_1 + 1} + \frac{\left( \frac{s_2^2}{n_2} \right)^2}{n_2 + 1} \right)} \right\} - 2$$

$$m = \frac{n \sum x_i y_i - \sum x_i \sum y_i}{n \sum (x_i^2) - (\sum x_i)^2}$$

$$b = \frac{\sum (x_i^2) \sum y_i - \sum x_i \sum x_i y_i}{n \sum (x_i^2) - (\sum x_i)^2}$$

$$\log \gamma = \frac{-0.51z^2 \sqrt{\mu}}{1 + \left( \frac{\alpha \sqrt{\mu}}{305} \right)}$$