# Final Exam Equations

**Chi Square:**

$$X^2 = \sum \frac{(fo - fe)^2}{fe}$$

$f_e$ = [(row total)(column total)]/n

where, $f_o$ =observed frequencies (actual)
$f_e$ = expected frequencies

**Lambda:**

$$\lambda = \frac{L - M}{L}$$

where, L = # of errors predicting w/o independent variable
M = # of errors predicting with independent variable

**Gamma:**

$$\gamma = \frac{N_S - N_D}{N_S + N_D}$$

where: $N_S$ = "same" pairs, # of

$N_D$ = "inverse" pairs, # of

**Pearson's Correlation Coefficient:**

$$r = \frac{\Sigma(x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\Sigma(x_i - \bar{x})^2 \, \Sigma(y_i - \bar{y})^2}}$$

**Regression equation:** $y = a + bx$ a = y-intercept b = slope

**Regression Coefficient:**

$$b = \frac{\Sigma[(x_i - \bar{x})(y_i - \bar{y})]}{\Sigma(x_i - \bar{x})^2}$$

**Constant:**

$$a = \bar{y} - b(\bar{x})$$