

# Fitting a Poisson Log-linear Model –examining the output

<sup>1</sup><https://onlinecourses.science.psu.edu/stat504/?q=book/export/html/60> - Goodness of Fit

- Firstly the goodness of fit test indicates that the model we are fitting seems to be correct
  - The goodness-of-fit chi-squared test of deviance is not statistically significant (189.45 with 196 degrees of freedom,  $p = 0.618$ ). - Comes from chi-square table\*
  - If the test had been statistically significant, it would indicate that the data do not fit the model well <sup>1</sup>
  - Similarly with the Pearson chi-square test
- The Tests of Model Effects evaluates each of the model variables with the appropriate degrees of freedom.
  - It seems to indicate the effect of maths score appears to be significant
  - The effects of program type are that p1 and p3 seem to be similar , but p2 has a significant effect

	Value	df	Value/df
Deviance	189.450	196	.967
Scaled Deviance	189.450	196	
Pearson Chi-Square	212.144	196	1.082
Scaled Pearson Chi-Square	212.144	196	
Log Likelihood <sup>b</sup>	-182.752		
Akaike's Information Criterion (AIC)	373.505		
Finite Sample Corrected AIC (AICC)	373.710		
Bayesian Information Criterion (BIC)	386.698		
Consistent AIC (CAIC)	390.698		

Source	Type III		
	Wald Chi-Square	df	Sig.
(Intercept)	54.745	1	.000
p1	.703	1	.402
p2	4.979	1	.026
math	43.806	1	.000

\*<http://www.socscistatistics.com/pvalues/chidistribution.aspx>