

1. For the following, list the number of explanatory variables.

Explanatory

Survival odds of polar bear cubs, in relation to ice cover. 1

Analysis of egg production in three species of fish,
controlled for body size. 2

2. Zar (1996 p463) reported the number of seeds from a genetic cross in which the expected proportion for green wrinkled seeds to all other seeds was 1:15.

If 250 seeds were obtained from the cross, calculate the expected number of green wrinkled seeds versus other types

green-wrinkled $\hat{f} = \underline{16.67}$ other $\hat{f} = \underline{233.33}$

The observed seed numbers were green wrinkled (6) and other (244).

Calculate the observed number, as a percentage of the expected number.

green-wrinkled $\% = \underline{6/16.67 = 0.36}$ other $\% = \underline{244/233.33 = 1.046}$

Calculate the $\ln L$, the log likelihood ratio of each type $\ln L = f \ln \left(\frac{f}{\hat{f}} \right)$

green-wrinkled $\ln L = \underline{-06.130}$ other $\ln L = \underline{10.907}$

Calculate the goodness of fit of observed to expected number of seeds.

$G = \underline{9.554}$

Is this difference statistically significant? _____ $\chi^2_{[0.05, 1]} = 3.84$

Yes, because $G = 9.554 > 3.84$