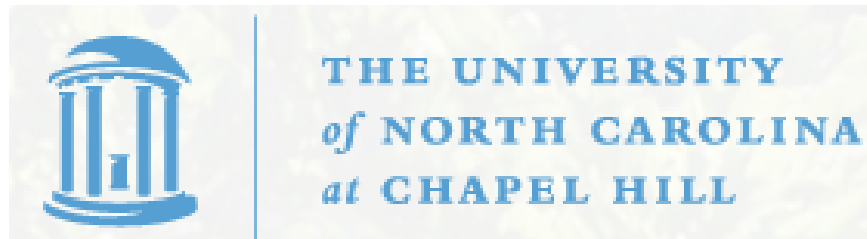


STOR 590:
ADVANCED LINEAR MODELS
Instructor: Richard L. Smith

Class Notes:
September 18, 2020



CLASS ANNOUNCEMENTS

- HW4: New deadline is Monday September 21 (late deadline Wednesday)
- From next week, we will revert to regular office hours, but look out for announced changes
- Take-home Midterm: Posted September 26, 6pm, to be returned by September 28, 6pm
- Spring 2020 midterm and final exams have been posted
- Final exam — still planning take-home exam, will update plans after the Midterm

Overdispersion

- Sometimes a more reasonable model may be $E(y_i) = \mu_i$, $\text{Var}(y_i) = \phi\mu_i$ where ϕ is a constant known as the *overdispersion* (usually but not necessarily $\phi > 1$)
- How to spot?
 - Plots of squared residuals against fitted values as in Fig. 5.3 (right — note that the plot is on a log scale here!)
 - Formal test of fit based on deviance or Pearson residuals (here leads to decisive rejection of the null hypothesis)
- Remedy — use `family=quasipoisson`
- For the species example we get a huge value $\phi = 31.7$
- There are still some observations with large Cook statistic but not nearly so bad as with the regular Poisson model