

STAT 696, Spring 2011  
Homework 4 Problems  
due Thurs. Feb. 24

2 Problems. Please follow the Lab report directions off the homework web page.

Please go through the Nonlinear Models and Least Squares Lab available below. (This time it really is suppose to be `stat700`.)

<http://www-rohan.sdsu.edu/~babailey/stat700/lab3.html>

1. In the Nonlinear Regression Lab, we fit a logistic growth model to Chick #1 weight in the “ChickWeight” dataset.

(a) Fit a logistic growth model to Chick #43. Give the parameter estimates and summary of the fit.

(b) Use the `myplotnls`, that will take **only** an `nls` object and provide 2x2 summary plots. Make a summary plot of your `nls` fit to weight of Chick #43. How well does the model fit the data?

2. In the Nonlinear Regression Lab we fit a nonlinear model to data from a biochemical experiment where the initial velocity of a reaction measured for different concentrations of the substrate are given in the data frame `Puromycin`. We will use the “untreated” dataset.

(a) Make a data frame called `Untreated`. Fit a Michaelis-Menton relationship to this data. Call the fitted object `Purfit2`.

(b) Using your plot from Problem 1(b) and make a summary plot of the fit. You should be able to call your plot function with **ONLY** the object `Purfit2`. How well does the model fit the data?

(c) Construct 95% CIs for  $V_m$  and  $K$ . (Hint: There is a R function `confint`.)