

Exercise J-2.3: Kaplan et al (1972) report the profile of blood concentration of drug sulfisoxazole after intravenous injection into human subject (see the dataset `serum_conc.txt`).

Use nonlinear regression to fit two-term clearance model:

$$y = \alpha_1 e^{-\lambda_1 t} + \alpha_2 e^{-\lambda_2 t} + e$$

- (a) **[7 points]** Use the R function `nls()` to apply the Gauss-Newton algorithm to obtain your solution. Make `trace=TRUE` to show the iterative process.
- (b) **[3 points]** Plot the data and superimpose the graph by the fitted function that you obtain in part (a) [Color the curve blue]. Moreover, superimpose on the same graph the fitted function that is obtained by a one-term clearance model (Done in class) [color it red]. How does the fit of the one-component model compare to that of the two-component model?